Contents 1996

January 1

1 **Immunohistochemical Study of Matrix Metalloproteinase-3 and Tissue Inhibitor of Metalloproteinase-1 in Human Intervertebral Discs**
Masakuni Kanemoto, Sinsuke Hukuda, Yasuhiro Komiya, Akitomo Katsuura, and Junichi Nishioka

9 **Intervertebral Disc Reconstitution After Chemonucleolysis With Chymopapain is Dependent on Dosage: An Experimental Study in Beagle Dogs**
James Melrose, Thomas K. F. Taylor, Peter Ghosh, Christene Holbert, Craig Macpherson, and Christopher R. Bellenger

17 **Point of View**
Theodore R. Oegema, Jr.

18 **Innervation of the Spinal Dura: Myth or Reality?**
Rakesh Kumar, Richard J. Berger, Stewart B. Dunsker, and Jeffrey T. Keller

25 **Point of View**
Yrjö T. Konttinen

27 **A Rabbit Model for Nonunion of Lumbar Intertransverse Process Spine Arthrodesis**
Michael A. Feiertag, Scott D. Boden, Jeffrey H. Schimandle, and John T. Norman

31 **Point of View**
Ian A. F. Stokes

32 **Expansive Laminoplasty for Cervical Radiculomyelopathy due to Soft Disc Herniation: A Comparative Study of Laminoplasty and Anterior Arthrodesis**
Motoki Iwasaki, Sohei Ebara, Shimpei Miyamoto, Eiji Wada, and Kazuo Yonenobu

39 **One Piece Cervical Device for Cervical Spine Surgery**
Hiroshi Mitsui

45 **Performance of Ventral Spondylodesis Screws in Cervical Vertebrae of Varying Bone Mineral Density**
Peter-Michael Zink

52 **Point of View**
Frank J. Eismont

53 **The Effect of Litigation Status on Adjustment to Whiplash Injury**
Leora C. Swartzman, Robert W. Teasell, Allan P. Shapiro, and Ann J. McDermid

59 **Three-dimensional Effect of the Boston Brace on the Thoracic Spine and Rib Cage**
Hubert Labelle, Jean Dansereau, Christian Bellefleur, and Benoit Poitras

64 **Point of View**
John E. Hall

65 **The Influence of Different Sitting Positions on Cervical and Lumbar Posture**
Kathleen M. Black, Philip McClure, and Marcia Polansky

70 **Point of View**
Jerold E. Lancourt

71 **Analysis of Lumbar Spine and Hip Motion During Forward Bending in Subjects With and Without a History of Low Back Pain**
Marcia A. Esola, Philip W. McClure, G. Kelley Fitzgerald, and Sorin Siegler

79 **Lumbar Disc High-intensity Zone: Correlation of Magnetic Resonance Imaging and Discography**
Kurt P. Schellhas, Steven R. Pollei, Cooper R. Gundry, and Kenneth B. Heithoff

86 **Point of View**
Jay A. Kaiser

87 **Pitfalls in the Measurement of Bone Mineral Density by Dual Energy X-ray Absorptiometry**
M. Darryl Antonacci, Darrell S. Hanson, and Michael H. Heggeness

91 **Point of View**
Thomas A. Einhorn

92 **Seven- to 10-year Outcome of Decompressive Surgery for Degenerative Lumbar Spinal Stenosis**
Jeffrey N. Katz, Stephen J. Lipson, Lily C. Chang, Sharon A. Levine, Anne H. Fossel, and Matthew H. Liang

98 **Point of View**
Björn L. Rydevik

99 **Spine and Scalp Recordings as a Function of Intensity: A Model for Changes During Spinal Cord Monitoring**
Jefferson C. Slimp, Walter C. Stolov, and Theodore A. Wagner

104 Characterization of an Experimental Spinal Cord Injury Model Using Waveform and Morphometric Analysis
James C. Falconer, Ponnada A. Narayana, Meena Bhattacharjee, and Shi-Jie Liu

113 Indirect Spinal Canal Decompression in Burst Fractures Treated With Pedicle Screw Instrumentation
Lennart Sjöström, Göran Karlström, Peter Pech, and Wolfgang Rauschning

124 Intraoperative Transligamentous Ultrasound in the Evaluation of Thoracic Intraspinal Disease: Technique
Martin M. Henegar, Dennis G. Vollmer, and Daniel L. Silbergeld

128 Urological Management in Patients with Spinal Cord Injuries
Ingrid E. Nygaard and Karl J. Kreder

133 Brown-Séquard and His Work on the Spinal Cord
Michael J. Aminoff

141 Economic Credentialing of Physicians: New Criteria and Evaluation of Physicians
Donovan W. Riley

147 Editorial Comment
R. Edward Howell

148 Editorial Comment
Thomas H. Lee

150 Letter

152 Meetings of Interest for Spine Physicians and Surgeons

154 Information for Authors

156 Uniform Requirements

January 15

161 Experimental Chemonucleolysis With Chondroitinase ABC in Monkeys
Tsuneto Sugimura, Fumihiko Kato, Kentaro Mimatsu, Osamu Takenaka, and Hisashi Iwata

166 Experimental Acute Dorsal Compression of Cat Spinal Cord: Correlation of Magnetic Resonance Signal Intensity With Spinal Cord Evoked Potentials and Morphology
Toshiaki Takahashi, Yuji Suto, Shinsuke Kato, and Eisaku Ohama

174 Morphologic Differences of the Vascular Buds in the Vertebral Endplate: Scanning Electron Microscopic Study
Sadaaki Oki, Yoshiro Matsuda, Taihoh Shibata, Hideo Okumura, and Junzo Desaki

178 Allografting Intervertebral Discs in Dogs: A Possible Clinical Application
Hiromi Matsuzaki, Ken Wakabayashi, Kazuhiro Ishihara, Hiroto Ishikawa, and Akihiro Ohkawa

184 Effects of Strain Distribution in the Intervertebral Discs on the Progression of Ossification of the Posterior Longitudinal Ligaments
Shunji Matsunaga, Takashi Sakou, Eiji Taketomi, and Kenji Nakanisi

190 Cartilaginous Endplate in Cervical Disc Herniation
Shoichi Kokubun, Minoru Sakurai, and Yasuhisa Tanaka

196 Laminoplasty With Foraminotomy for Coexisting Cervical Myelopathy and Unilateral Radiculopathy: A Preliminary Report
Hisatoshi Baba, Qixin Chen, Kenzo Uchida, Shinichi Imura, Seiji Morikawa, and Katsuro Tomita

203 Extradural Tethering Effect As One Mechanism of Radiculopathy Complicating Posterior Decompression of the Cervical Spinal Cord
Nobuyuki Tsuzuki, Ryoji Abe, Kunio Saiki, and Li Zhongshi

211 Point of View
Frank J. Eismont

212 A New Method Using Top Views of the Spine to Predict the Progression of Curves in Idiopathic Scoliosis During Growth
Yoshihiro Kohashi, Masayoshi Oga, and Yoichi Sugioka

218 Inflammatory Cytokines in the Herniated Disc of the Lumbar Spine
Hiroshi Takahashi, Toru Suguro, Yukikazu Okazima, Mituo Motegi, Yayoi Okada, and Terutaka Kakiuchi

224 Point of View
James D. Kang

225 The Natural History of Herniated Nucleus Pulposus With Radiculopathy
Hiromichi Komori, Kenichi Shinomiya, Osamu Nakai, Isakichi Yamaura, Syuichi Takeda, and Kohtaro Furuya

230 **Histologic Evidence of Absorption of Sequestration-Type Herniated Disc**
Takui Ito, Mitsunori Yamada, Fusahiro Ikuta, Takeaki Fukuda, Shin-ichi Hoshi, Youichi Kawaji, Seiji Uchiyama, Takao Homma, and Hideaki E. Takahashi

235 **Immunohistologic Study of the Ruptured Intervertebral Disc of the Lumbar Spine**
Minoru Doita, Takako Kanatani, Toshihiko Harada, and Kosaku Mizuno

242 **Indication of Fusion for Lumbar Spinal Stenosis in Elderly Patients and Its Significance**
Kazunori Yone, Takashi Sakou, Yosihisa Kawauchi, Masao Yamaguchi, and Mitsuhiro Yanase

249 **Tumoral Calcinosis in the Upper Cervical Spine: A Case Report**
Shoichi Kokubun, Hiroshi Ozawa, Minoru Sakurai, and Yasuhisa Tanaka

253 **Letters**

255 **Meetings of Interest for Spine Physicians and Surgeons**

257 **Information for Authors**

February 1

259 **Classics in *Spine*: Surgery Literature Revisited**
Louis Bessette, Matthew H. Liang, Robert A. Lew, and James N. Weinstein

264 **Internal Architecture of the Thoracic Pedicle: An Anatomic Study**
Ralph Kothe, James D. O'Holleran, Wen Liu, and Manohar M. Panjabi

271 **Herniated Lumbar Intervertebral Discs Spontaneously Produce Matrix Metalloproteinases, Nitric Oxide, Interleukin-6, and Prostaglandin E_2**
James D. Kang, Helga I. Georgescu, Lori McIntyre-Larkin, Maja Stefanovic-Racic, William F. Donaldson, III, and Christopher H. Evans

277 **Point of View**
Jill Urban

278 **The Role of Spinal Instrumentation in Augmenting Lumbar Posterolateral Fusion**
Yoshihisa Kotani, Bryan W. Cunningham, Andrew Cappuccino, Kiyoshi Kaneda, and Paul C. McAfee

288 **Short-segment Pedicle Instrumentation: Biomechanical Analysis of Supplemental Hook Fixation**
Masahiro Chiba, Robert F. McLain, Scott A. Yerby, Timothy A. Moseley, Tait S. Smith, and Daniel R. Benson

295 **Biomechanical Comparison of the Dewar and Interspinous Cervical Spine Fixation Techniques**
Edward D. Simmons, Jr., Thomas G. Burke, Timothy Haley, and John Medige

299 **Point of View**
Paul A. Anderson

300 **Cervical Discogenic Pain: Prospective Correlation of Magnetic Resonance Imaging and Discography in Asymptomatic Subjects and Pain Sufferers**
Kurt P. Schellhas, Michael D. Smith, Cooper R. Gundry, and Steven R. Pollei

311 **Point of View**
James F. Zucherman

313 **Spinal Intermittent Claudication due to Cervical and Thoracic Degenerative Spine Disease**
Shinichi Kikuchi, Eiichi Watanabe, and Mitsuo Hasue

318 **Point of View**
Stephen Eisenstein

319 **Segmental Variations of Bone Mineral Density in the Cervical Spine**
Lukas J. Curylo, Ronald W. Lindsey, Brian J. Doherty, and Adrian LeBlanc

323 **Posterior Cervical Arthrodesis and Stabilization With a Lateral Mass Plate: Clinical and Computed Tomographic Evaluation of Lateral Mass Screw Placement and Associated Complications**
Angus W. Graham, Michael L. Swank, Richard E. Kinard, Gary L. Lowery, and Bill E. Dials

329 **Point of View**
Paul A. Anderson

330 **Mechanics of the External Fixation Test in the Lumbar Spine: A Roentgen Stereophotogrammetric Analysis**
Paul Axelsson, Ragnar Johnsson, and Björn Strömqvist

334 **Discographic Pain Report: Influence of Psychological Factors**
Andrew R. Block, Heikki Vanharanta, Donna D. Ohnmeiss, and Richard D. Guyer

339 **Acute Severe Low Back Pain: A Population-based Study of Prevalence and Care-seeking**
Timothy S. Carey, Arthur T. Evans, Nortin M. Hadler, Grazyna Lieberman, William D. Kalsbeek, Anne M. Jackman, John G. Fryer, and Robert A. McNutt

345 **Pitfalls of Patient Education: Limited Success of a Program for Back Pain in Primary Care**
Daniel C. Cherkin, Richard A. Deyo, Janet H. Street, Marcia Hunt, and William Barlow

355 **Point of View**
Nortin M. Hadler

356 **The Effects of Lumbosacral Support Belts and Abdominal Muscle Strength on Functional Lifting Ability in Healthy Women**
Elizabeth B. Smith, Amy A. Rasmussen, Deborah E. Lechner, Marilyn R. Gossman, Jose B. Quintana, and Bruce L. Grubbs

366 **Point of View**
Malcolm H. Pope

367 **Reduction of High-grade Spondylolisthesis Using Edwards Instrumentation**
Serena S. Hu, David S. Bradford, Ensor E. Transfeldt, and Melissa Cohen

372 **Adolescent Disc Protrusions: A Long-term Follow-up of Surgery Compared to Chymopapain**
Neil Bradbury, Lester F. Wilson, and Robert C. Mulholland

378 **Open Posterior Dislocation of the Lumbosacral Junction: A Case Report**
Joel A. Finkelstein, Richard W. Hu, and Talal Al-Harby

381 **Amyloidosis-related Cauda Equina Compression in Long-term Hemodialysis Patients: Three Case Reports**
Christian Marcelli, Dominique Pérennou, Catherine Cyteval, Hélène Leray, Jean-Louis Lamarque, Charles Mion, and Lucien Simon

386 **Postsurgical Ossified Extradural Cyst of the Lumbar Spine: A Case Report**
Haruhiko Saito and Noriaki Kawakami

389 **Vertebral Pneumatocyst: A Case Report**
Lia Laufer, Hanna Schulman, and Yancu Hertzanu

392 **Impaired Cognitive Functioning After Whiplash Injury of the Cervical Spine**
Bogdan P. Radanov and Jiri Dvorak

398 **Victor Horsley's Surgery for Cervical Caries and Fracture: The Centennial Anniversary**
Thomas Keller

402 **Lumbar Discography**
Nikolai Bogduk and Michael T. Modic

405 **Information for Authors**

February 15

407 **Radiologic and Anatomic Evaluation of the Anterior Sacral Foramens and Nerve Grooves**
Rongming Xu, Nabil A. Ebraheim, Jason Robke, Marc Huntoon, and Richard A. Yeasting

411 **Ultrastructural Changes in Spinal Nerve Roots Induced by Autologous Nucleus Pulposus**
Kjell Olmarker, Claes Nordborg, Karin Larsson, and Björn Rydevik

415 **Transport Properties of the Human Cartilage Endplate in Relation to Its Composition and Calcification**
Sally Roberts, Jill P. G. Urban, Helena Evans, and Stephen M. Eisenstein

421 **The Effect of Substance P on Proliferation and Proteoglycan Deposition of Cells Derived From Rabbit Intervertebral Disc**
I. K. Ashton and S. M. Eisenstein

427 **A Biomechanical Model of the Lumbar Spine During Upright Isometric Flexion, Extension, and Lateral Bending**
David C. Guzik, Tony S. Keller, Marek Szpalski, Jane H. Park, and Dan M. Spengler

434 **Sustained Loading Generates Stress Concentrations in Lumbar Intervertebral Discs**
M. A. Adams, D. W. McMillan, T. P. Green, and P. Dolan

439 **Strength of Fixation of Anterior Vertebral Body Screws**
William C. Horton, Stephen F. Blackstock, John T. Norman, Carey S. Hill, Michael A. Feiertag, and William C. Hutton

445 **The Role of Pediculolaminar Fixation in Compromised Pedicle Bone**
Alan S. Hilibrand, Douglas C. Moore, and Gregory P. Graziano

452 **Tensile Properties of Nondegenerate Human Lumbar Anulus Fibrosus**
Sohei Ebara, James C. Iatridis, Lori A. Setton, Robert J. Foster, Van C. Mow, and Mark Weidenbaum

462 **Flexion Failure of Posterior Cervical Lateral Mass Screws: Influence of Insertion Technique and Position**
Jack Choueka, Jeffrey M. Spivak, Frederick J. Kummer, and Thomas Steger

469 **Restriction Fragment Length Polymorphism of Genes of the α2(XI) Collagen, Bone Morphogenetic Protein-2, Alkaline Phosphatase, and Tumor Necrosis Factor-α Among Patients With Ossification of Posterior Longitudinal Ligament and Controls From the Japanese Population**
H. Koga, K. Hayashi, E. Taketomi, S. Matsunaga, S. Yashiki, T. Fujiyoshi, S. Sonoda, and T. Sakou

474 A Novel Technique for Laminoplasty Augmentation of Spinal Canal Area Using Titanium Miniplate Stabilization: A Computerized Morphometric Analysis
Michael F. O'Brien, David Peterson, Adrian T. H. Casey, and H. Alan Crockard

484 Point of View
Volker K. H. Sonntag

485 Measurement of Motor Conduction in the Thoracolumbar Cord: A Possible Predictor of Surgical Outcome in Cervical Spondylotic Myelopathy
Chein-Wei Chang and Swei-Ming Lin

491 Point of View
Rick B. Delamarter

492 Epidemiology of Incident Spinal Fracture in a Complete Population
Richard Hu, Cameron A. Mustard, and Charles Burns

500 Clinical Characteristics of Recurrent Sciatica After Lumbar Discectomy
Bo Jönsson and Björn Strömqvist

505 Point of View
Scott D. Boden

506 Calcium Pyrophosphate Dihydrate Crystal Deposition Disease As a Cause of Lumbar Canal Stenosis
Andrew D. Markiewitz, Frank R. Boumphrey, Thomas W. Bauer, and Gordon R. Bell

512 Spinal Dural Arteriovenous Malformations: Intraoperative Evoked Potential Evidence for Pathophysiology
Mark M. Stecker, Paul Marcotte, Robert Hurst, and Terry Patterson

516 Osteochondroma of the Upper Cervical Spine: A Case Report
Ertekin Arasil, Atilla Erdem, and Nurullah Yüceer

519 Odontoid Fracture and C1–C2 Subluxation in Psoriatic Cervical Spondyloarthropathy
Julian Sosner, Avital Fast, and Brian S. Kahan

522 Giant Sacral Schwannoma
Eligio G. Ortolan, Carlos A. Sola, Marcelo F. Gruenberg, and Francisco Carballo Vazquez

527 Letters

531 Meetings of Interest for Spine Physicians and Surgeons

534 Information for Authors

March 1

537 Editorial

538 A Morphological Study of the Fibrous Capsule of the Human Lumbar Facet Joint
Toshihiko Yamashita, Yasuhiko Minaki, A. Cüneyt Ozaktay, John M. Cavanaugh, and Albert I. King

544 Morphological Survey of the Cervicothoracic Junctional Region
Jeffrey J. W. Boyle, Kevin P. Singer, and Nicholas Milne

549 Effects of Short Anterior Lumbar Interbody Fusion on Biomechanics of Neighboring Unfused Segments
Daniel H. K. Chow, Keith D. K. Luk, John H. Evans, and John C. Y. Leong

556 The Function of the Long Dorsal Sacroiliac Ligament: Its Implication for Understanding Low Back Pain
Andry Vleeming, Annelies L. Pool-Goudzwaard, Dilara Hammudoghlu, Rob Stoeckart, Chris J. Snijders, and Jan M. A. Mens

563 A New Magnetic Resonance Imaging Analysis Method for the Measurement of Disc Height Variations
Norbert Boos, Ake Wallin, Max Aebi, and Chris Boesch

571 Ultrasonic Imaging of Lumbar Discs Combined With Vibration Pain Provocation Compared With Discography in the Diagnosis of Internal Anular Fissures of the Lumbar Spine
Matti Yrjämä, Osmo Tervonen, and Heikki Vanharanta

574 Point of View
Klaus-Peter Schulitz

576 Axial Rotation Measurement of Scoliotic Vertebrae by Means of Computed Tomography Scans
Martin Krismer, Wolfgang Sterzinger, Christian Haid, Bernhard Frischhut, and Rudolf Bauer

582 Radiologic Evaluation of Iliosacral Screw Placement
Rongming Xu, Nabil A. Ebraheim, Jason Robke, and Richard A. Yeasting

589 Intraoperative Improvements of Somatosensory Evoked Potentials: Correlation to Clinical Outcome in Surgery for Cervical Spondylitic Myelopathy
Jacques A. Bouchard, Henry H. Bohlman, and Chris Biro

595 **Ambulatory Electromyogram Activity in the Upper Trapezius Region: Patients With Muscle Pain vs. Pain-free Control Subjects**
Charles R. Carlson, Kennen T. Wynn, John Edwards, Jeffrey P. Okeson, Arthur J. Nitz, Don E. Workman, and Jeffrey Cassisi

600 **Evoked and Spontaneous Electromyography to Evaluate Lumbosacral Pedicle Screw Placement**
David H. Clements, David E. Morledge, William H. Martin, and Randal R. Betz

605 **Lumbar Muscle Activities in Rapid Three-dimensional Pulling Tasks**
Darryl G. Thelen, James A. Ashton-Miller, and Albert B. Schultz

614 **Validation of the American Spinal Injury Association (ASIA) Motor Score and the National Acute Spinal Cord Injury Study (NASCIS) Motor Score**
Wagih S. El Masry, Masahiko Tsubo, Shinsuke Katoh, Yasser H. S. El Miligui, and Ameen Khan

620 **Outcome of Anterior Decompression and Stabilization for Thoracolumbar Unstable Burst Fractures in the Absence of Neurologic Deficits**
Koichiro Okuyama, Eiji Abe, Mitsuho Chiba, Noriyuki Ishikawa, and Kozo Sato

626 **The Failed Back Surgery Syndrome: Reasons, Intraoperative Findings, and Long-term Results: A Report of 182 Operative Treatments**
Ekkehard W. Fritsch, Jürgen Heisel, and Stefan Rupp

633 **Point of View**
Edward N. Hanley, Jr.

634 **Epithelioid Sarcoma of the Spine: A Case Report**
Jean-Paul Steib, Fabrice Pierchon, Jean Pierre Farcy, Gabriel Lang, Daniel Christmann, and Jean-Pierre Gnassia

639 **The Path of a Wounding Missile Along the Spinal Canal: A Case Report**
Igor Tekavčič and Vladimir A. Smrkolj

642 **Spinal Pigmented Villonodular Synovitis: A Case Report**
Ferruh Gezen, Kamil Melih Akay, Aziz Yasar Aksu, Altay Bedük, and Naci Seber

646 **Understanding Cost-effectiveness**
Robin E. Clark

651 **Editorial Comment**
Milton C. Weinstein

653 **Spinal Deformity and Axial Traction**
Kush Kumar

656 **Letters**

658 **Meetings of Interest for Spine Physicians and Surgeons**

March 15

661 **Postnatal Development and Structure of the Neurocentral Junction: Its Relevance for Spinal Surgery**
George J. R. Maat, Bartolomeo Matricali, and Elisabeth L. van Persijn van Meerten

667 **Comparisons of Lordotic Cervical Spine Curvatures to a Theoretical Ideal Model of the Static Sagittal Cervical Spine**
Donald D. Harrison, Tadeusz J. Janik, Stephan J. Troyanovich, and Burt Holland

676 **Kinematic Evaluation of Lumbar Fusion Techniques**
Stephen I. Esses, Brian J. Doherty, Matthew J. Crawford, and Vadim Dreyzin

685 **Cervical Interbody Xenograft With Plate Fixation: Evaluation of Fusion After 7 Years of Use in Post-Traumatic Discoligamentous Instability**
Samuel A. Malca, Pierre-Hugues Roche, Eugenio Rosset, and William Pellet

691 **Anatomic Consideration of C2 Pedicle Screw Placement**
Nabil Ebraheim, James R. Rollins Jr, Rongming Xu, and William T. Jackson

694 **Point of View**
Kuniyoshi Abumi

696 **Evaluation of Cervical Posterior Lateral Mass Screw Placement by Oblique Radiographs**
Rongming Xu, Jason Robke, Nabil A. Ebraheim, and Richard A. Yeasting

702 **Back Pain During Pregnancy: A Prospective Study**
Per Kristiansson, Kurt Svärdsudd, and Bo von Schoultz

709 **Point of View**
Ingrid Nygaard

710 **Are Occupational Drivers at an Increased Risk for Developing Musculoskeletal Disorders?**
Marianne L. Magnusson, Malcolm H. Pope, David G. Wilder, and Björn Areskoug

717 **Point of View**
Albert I. King

718 **Thoracic Volume Changes in Scoliosis Surgery**
Kirkham B. Wood, Michael J. Schendel, Mark B. Dekutoski, Ohenoba Boachie-Adjei, and Kenneth H. Heithoff

724 **Inappropriate Secretion of Antidiuretic Hormone in Postoperative Scoliosis Patients: The Role of Fluid Management**
Peter W. Brazel and Ian B. McPhee

728 **Surgical Treatment of Severe L5–S1 Spondylolisthesis in Children and Adolescents: Results of Intraoperative Reduction, Posterior Interbody Fusion, and Segmental Pedicle Fixation**
Daniele A. Fabris, Sandro Costantini, and Ugo Nena

734 **Anterior Instrumentation of the Spine in Thoracic and Thoracolumbar Fractures: The Single Rod *Versus* the Double Rod Slot–Zielke Device**
Jan L. M. van Loon, Gerard H. Slot, and Paul W. Pavlov

739 **Point of View**
Thomas J. Errico

741 **The North American Spine Society Lumbar Spine Outcome Assessment Instrument: Reliability and Validity Tests**
Lawren H. Daltroy, William L. Cats-Baril, Jeffrey N. Katz, Anne H. Fossel, and Matthew H. Liang

749 **Point of View**
Floyd J. Fowler, Jr

750 **Dose Distribution at Radiographic Examination of the Spine in Pediatric Radiology**
Anja J. Almén and Sören Mattsson

757 **Atlantoaxial Instability in Lesch-Nyhan Syndrome**
Peter C. Shewell and Alistair G. Thompson

762 **Point of View**
Robert N. Hensinger

763 **Meningitis Complicating Spinal Surgery**
Roy S. Twyman, Peter Robertson, and Mark G. Thomas

766 **Intramedullary Tuberculous Abscess: A Case Report**
Murat Hanci, Ali C. Sarioğlu, Mustafa Uzan, Civan Işlak, Mehmet Y. Kaynar, and Büge Oz

770 **Congenital Spine Deformity, Congenital Stenosis, Diastematomyelia, and Tight Filum Terminale in a Workmen's Compensation Patient: A Case Report**
M. M. Azhar, Robert B. Winter, and Mary B. Dunn

775 **Letters**

778 **Meetings of Interest for Spine Physicians and Surgeons**

781 **Information for Authors**

April 1

783 **Morphologic Analysis of the Facet Joint in the Immature Lumbosacral Spine With Special Reference to Spondylolysis**
Ryoji Miyake, Takaaki Ikata, Shinsuke Katoh, and Tetsuki Morita

790 **The Projection of the Lateral Sacral Mass on the Outer Table of the Posterior Ilium**
Rongming Xu, Nabil A. Ebraheim, Kevin Douglas, and Richard A. Yeasting

795 **Point of View**
Srdjan Mirkovic

796 **Measurement Properties of a Self-Administered Outcome Measure in Lumbar Spinal Stenosis**
Gerold Stucki, Lawren Daltroy, Matthew H. Liang, Steven J. Lipson, Anne H. Fossel, and Jeffrey N. Katz

803 **Point of View**
Timothy S. Carey

804 **Pain and Psychologic Symptoms of Australian Patients With Whiplash**
Barbara J. Wallis, Susan M. Lord, Leslie Barnsley, and Nikolai Bogduk

811 **Effects of Degeneration on the Elastic Modulus Distribution in the Lumbar Intervertebral Disc**
Shinji Umehara, Shigeru Tadano, Kuniyoshi Abumi, Kazuaki Katagiri, Kiyoshi Kaneda, and Takayoshi Ukai

820 **Point of View**
Jill Urban

821 **Mechanical Principles of Compressive Interbody Fusion**
Andreas Krödel

827 **Cervical Spondylotic Myelopathy: Clinicopathologic Study on the Progression Pattern and Thin Myelinated Fibers of the Lesions of Seven Patients Examined During Complete Autopsy**
Takui Ito, Kiyomitsu Oyanagi, Hitoshi Takahashi, Hideaki E. Takahashi, and Fusahiro Ikuta

834 **Anterior Cervical Discectomy With or Without Fusion With Acrylate: A Randomized Trial**
Martin J. van den Bent, Johannes Oosting, Ernest J. Wouda, Rob E. H. van Acker, Ben J. J. Ansink, and Reinder Braakman

840 **Point of View**
Harry N. Herkowitz

841 **Effects of Culture on Back Pain in Australian Aboriginals**
Peter T. Honeyman and Eva A. Jacobs

844 **Functional Restoration: Returning Patients With Chronic Low Back Pain to Work—Revolution or Fad?**
Robert W. Teasell and Manfred Harth

848 **Efficacy and Cost Considerations of Intraoperative Autologous Transfusion in Spinal Fusion for Idiopathic Scoliosis With Predeposited Blood**
Terry A. Siller, Jesse H. Dickson, and Wendell D. Erwin

853 **Deep Vein Thrombosis After Major Reconstructive Spinal Surgery**
Steven E. Rokito, Michael C. Schwartz, and Michael G. Neuwirth

859 **Point of View**
Richard D. Guyer

860 **Monostotic Fibrous Dysplasia of the Thoracic Spine: A Case Report**
Gregory J. Przybylski, Ian F. Pollack, and W. Timothy Ward

866 ***Torulopsis glabrata* Spinal Osteomyelitis Involving Two Contiguous Vertebrae: A Case Report**
Michael P. Curran and Lawrence G. Lenke

871 **Local Tissue of the Lumbar Spine Response to Titanium Plate–Screw System: Case Reports**
Rongming Xu, Nabil A. Ebraheim, Matthew C. Nadaud, and Edwin R. Phillips

874 **Point of View**
Joon B. Park

875 **Projection of the S2 Pedicle Onto the Posterolateral Surface of the Ilium: A Technique for Lag Screw Fixation of Sacral Fractures or Sacroiliac Joint Dislocations**
Mark L. Cecil, James R. Rollins, Jr, Nabil A. Ebraheim, and Richard A. Yeasting

879 **Spinal Cord and Nerve Root Monitoring in Spine Surgery and Related Procedures**
Jörg Herdmann, Vedran Deletis, Harvey L. Edmonds, Jr, and Nobu Morota

886 **Jacques Calvé**
Klaus Peter Schulitz and Oliver Niggemeyer

891 **Computer Use, Computer Training, and Employment: Outcomes Among People With Spinal Cord Injuries**
Douglas Kruse, Alan Krueger, and Susan Drastal

897 **Letters**

900 **Meetings of Interest for Spine Physicians and Surgeons**

903 **Information for Authors**

April 15

905 **The Hippocratic Enigma**
James N. Weinstein

910 **Practice Variations and the Challenge to Leadership**
John E. Wennburg

917 **Origin of Nerves Supplying the Posterior Portion of Lumbar Intervertebral Discs in Rats**
Shin-ichiro Nakamura, Kazuhisa Takahashi, Yuzuru Takahashi, Tatsuo Morinaga, Yutaka Shimada, and Hideshige Moriya

925 **An Anatomic Study of Neuropeptide Immunoreactivities in the Lumbar Dura Mater After Lumbar Sympathectomy**
Yasufumi Sekiguchi, Yasunobu Konnai, Shinichi Kikuchi, and Yasuo Sugiura

931 **Neurophysiologic Changes in Lumbar Nerve Root Inflammation in the Rat After Treatment With Cytokine Inhibitors: Evidence for a Role of Interleukin-1**
P. Wehling, S. J. Cleveland, K. Heininger, K. P. Schulitz, J. Reinecke, and C. H. Evans

936 **Remodeling of Vertebral Bone After Outer Anular Injury in Sheep**
Robert J. Moore, Barrie Vernon-Roberts, Orso L. Osti, and Robert D. Fraser

941 **Back Muscle Injury After Posterior Lumbar Spine Surgery: A Histologic and Enzymatic Analysis**
Yoshiharu Kawaguchi, Hisao Matsui, and Haruo Tsuji

945 **Early Prediction of Chronic Disability After Occupational Low Back Injury**
Rowland G. Hazard, Larry D. Haugh, Sheila Reid, Jeffrey B. Preble, and Lise MacDonald

952 **Recurrent or New Injury Outcomes After Return to Work in Chronic Disabling Spinal Disorders: Tertiary Prevention Efficacy of Functional Restoration Treatment**
Pamela Garcy, Tom Mayer, and Robert J. Gatchel

960 **Health Outcome Assessment Before and After Lumbar Laminectomy for Radiculopathy**
Todd J. Albert, Joseph J. Mesa, Kenneth Eng, Theresa C. McIntosh, and Richard A. Balderston

963 **Point of View**
Jeffrey N. Katz

964 **Lumbar Lordosis in Spinal Fusion: A Comparison of Intraoperative Results of Patient Positioning on Two Different Operative Table Frame Types**
Anthony F. Guanciale, Jocylane M. Dinsay, and Robert G. Watkins

970 **Lumbar Motion Segment Pathology Adjacent to Thoracolumbar, Lumbar, and Lumbosacral Fusions**
John D. Schlegel, Jason A. Smith, and Rand L. Schleusener

982 **The Safety and Efficacy of the Isola Spinal Implant System for the Surgical Treatment of Degenerative Disc Disease: A Prospective Study**
Brad B. Hall, Marc A. Asher, Rosemary H. Zang, and Linda M. Quinn

995 **Results of Disc Prosthesis After a Minimum Follow-Up Period of 2 Years**
Gianluca Cinotti, Thierry David, and Franco Postacchini

1000 **Point of View**
John P. Kostuik

1001 **Letters**

1002 **Meetings of Interest for Spine Physicians and Surgeons**

May 1

1005 **Morphometric Analysis of the Lumbosacral Nerve Roots and Dorsal Root Ganglia by Magnetic Resonance Imaging**
Toru Hasegawa, Yoshihiro Mikawa, Ryo Watanabe, and Howard S. An

1010 **Morphometric Study of Myelinated Fibers in Human Cervical Spinal Cord White Matter**
Mitsunori Makino, Kentaro Mimatsu, Haruhiko Saito, Nobuo Konishi, and Yoshio Hashizume

1016 **Point of View**
Curtis A. Dickman

1017 **Anatomic Considerations for Posterior Iliac Bone Harvesting**
Rongming Xu, Nabil A. Ebraheim, Richard A. Yeasting, and W. Thomas Jackson

1021 **Quantified Pain Drawing in Subacute Low Back Pain: Validation in a Nonselected Outpatient Industrial Sample**
Carl Ohlund, Claes Eek, Susanne Palmblad, Björn Areskoug, and Alf Nachemson

1031 **Point of View**
Dennis C. Turk and Akiko Okifuji

1032 **Biomechanical Analysis of Thoracolumbar Interbody Constructs: How Important Is the Endplate?**
James P. Hollowell, Dennis G. Vollmer, Charles R. Wilson, Frank A. Pintar, and Narayan Yoganandan

1036 **Point of View**
Henry H. Bohlman

1037 **Effect of Specimen Fixation Method on Pullout Tests of Pedicle Screws**
Michael Pfeiffer, Lars G. Gilbertson, Vijay K. Goel, Peter Griss, John C. Keller, Timothy C. Ryken, and Hans E. Hoffman

1045 **Increased Limb Lengths in Patients With Shortened Spines due to Tuberculosis in Early Childhood**
Manoj Krishna and Shanti S. Upadhyay

1048 **Cost-Effectiveness of Lumbar Discectomy for the Treatment of Herniated Intervertebral Disc**
Alex D. Malter, Eric B. Larson, Nicole Urban, and Richard A. Deyo

1055 **Point of View**
Robin E. Clark

1056 **Predictors of Bad and Good Outcome of Lumbar Spine Surgery: A Prospective Clinical Study With 2 Years' Follow-up**
Astrid Junge, Markus Fröhlich, Stephan Ahrens, Monika Hasenbring, Aaron J. Sandler, Dieter Grob, and Jiří Dvořák

1064 **Point of View**
Chris J. Main

1066 **Factors Predicting Employment 1 Year After Traumatic Spine Fracture**
Robert S. Burnham, Sharon A. Warren, Linda A. Saboe, Lyle A. Davis, G. Gordon Russell, and David C. Reid

1072 **First-Time Operation for Lumbar Disc Herniation With or Without Free Fat Transplantation: Prospective Triple-Blind Randomized Study With Reference to Clinical Factors and Enhanced Computed Tomographic Scan 1 Year After Operation**
Tim Toftgaard Jensen, Karsten Asmussen, Else-Marie Berg-Hansen, Birgitte Lauritsen, Claus Manniche, Henrik Vinterberg, Lars E. Jensen, and Jens Kramhøft

1077 **Nonorganic Signs of Significance in Low Back Pain**
Bertram M. Kummel

1082 **Symptomatic Spinal Hemangiomas in Association With Cutaneous Hemangiomas: A Case Report**
Theophilus O. Asumu, Brad Williamson, and David G. Hughes

1085 **Tortuosity of the Vertebral Artery in Patients With Cervical Spondylotic Myelopathy: Risk Factor for the Vertebral Artery Injury During Anterior Cervical Decompression**
Masayoshi Oga, Itaru Yuge, Kazumasa Terada, Atushi Shimizu, and Yoichi Sugioka

1090 **Retroperitoneal Pseudomeningocele Complicated by Meningitis Following a Lumbar Burst Fracture: A Case Report**
James G. Nairus, Jory D. Richman, and Richard A. Douglas

1094 **Multifocal Metachronous Epidural Abscesses of the Spine: A Case Report**
Gregory H. Chow, James S. Gebhard, and Courtney W. Brown

1098 **Spinal Stenosis Above a Healed Tuberculous Kyphosis: A Case Report**
Keith D. K. Luk and Manoj Krishna

1102 **Chemonucleolysis**
Eugene J. Nordby, Robert D. Fraser, and Manucher J. Javid

1106 **Sir William Gowers: 1845–1915**
Robert C. Mulholland

1111 **Is Fusion Necessary After Anterior Cervical Discectomy?**
Volker K. H. Sonntag and Peter Klara

1114 **Assessment of Spinal Fusion: Critical Evaluation of Imaging Techniques**
Richard J. Herzog and Paul J. Marcotte

1119 **Letters**

1124 **Meetings of Interest for Spine Physicians and Surgeons**

1128 **Information for Authors**

May 15

1131 **Presidential Address: 30th Annual Meeting of the Scoliosis Research Society**
Edgar G. Dawson

1133 **An Anatomic Evaluation of L5 Nerve Stretch in Spondylolisthesis Reduction**
Douglas M. Petraco, Jeffrey M. Spivak, Joseph G. Cappadona, Frederick J. Kummer, and Michael G. Neuwirth

1139 **Point of View**
Robert N. Hensinger

1140 **The Role of Melatonin in the Pathogenesis of Adolescent Idiopathic Scoliosis**
Alan S. Hilibrand, Laurel C. Blakemore, Randall T. Loder, Mary Lou Greenfield, Frances A. Farley, Robert N. Hensinger, and M. Hariharan

1147 **Melatonin: A Possible Role in Pathogenesis of Adolescent Idiopathic Scoliosis**
Masafumi Machida, Jean Dubousset, Yasuhide Imamura, Yukiko Miyashita, Thoru Yamada, and Jun Kimura

1153 **The Human Lumbar Endplate: Evidence of Changes in Biosynthesis and Denaturation of the Extracellular Matrix With Growth, Maturation, Aging, and Degeneration**
John Antoniou, Nora M. Goudsouzian, Terrence F. Heathfield, Neil Winterbottom, Thomas Steffen, A. Robin Poole, Max Aebi, and Mauro Alini

1162 **Mechanical Modulation of Vertebral Body Growth: Implications for Scoliosis Progression**
Ian A. F. Stokes, Holly Spence, David D. Aronsson, and Nicholas Kilmer

1168 **Overpowering the Crankshaft Mechanism: The Effect of Posterior Spinal Fusion With and Without Stiff Transpedicular Fixation on Anterior Spinal Column Growth in Immature Canines**
Hans C. Kioschos, Marc A. Asher, Richard G. Lark, and E. James Harner

1174 **Is the Nucleus Pulposus a Solid or a Fluid? Mechanical Behaviors of the Nucleus Pulposus of the Human Intervertebral Disc**
James C. Iatridis, Mark Weidenbaum, Lori A. Setton, and Van C. Mow

1185 **Effect of Sacral and Iliac Instrumentation on Strains in the Pelvis: A Biomechanical Study**
Kirkham B. Wood, Michael J. Schendel, James W. Ogilvie, John Braun, and James R. Malcom

1192 **Geometric Analysis of Coronal Decompensation in Idiopathic Scoliosis**
Avinash G. Patwardhan, Aruna Rimkus, Thomas M. Gavin, Matthew Bueche, Kevin P. Meade, Robert Bielski, and Kamal Ibrahim

1201 **Distractive Properties of a Threaded Interbody Fusion Device: An *In Vivo* Model**
Harvinder S. Sandhu, Simon Turner, J. Michael Kabo, Linda E. A. Kanim, David Liu, Arash Nourparvar, Rick B. Delamarter, and Edgar G. Dawson

1210 **Point of View**
H. Ulrich Bueff

1211 **Biomechanical Analysis of Lumbosacral Fixation**
Paul A. Glazer, Olivier Colliou, Jeffrey C. Lotz, and David S. Bradford

1223 **Complications and Long-Term Outcome of Upper Cervical Spine Arthrodesis in Patients With Down Syndrome**
J. Scott Doyle, William C. Lauerman, Kirkham B. Wood, and David R. Krause

1232 **Paraplegia Resulting From Vessel Ligation**
Robert B. Winter, John E. Lonstein, Francis Denis, Arnold S. Leonard, and Joseph J. Garamella

1233 **Point of View**
John P. Kostuik

1235 **The Congenital Dislocated Spine**
Reinhard D. Zeller, Ismat Ghanem, and Jean Dubousset

1241 **The Use of Pedicle Screw Fixation to Improve Correction in the Lumbar Spine of Patients With Idiopathic Scoliosis: Is It Warranted?**
Christopher L. Hamill, Lawrence G. Lenke, Keith H. Bridwell, Michael P. Chapman, Kathy Blanke, and Christy Baldus

1250 **New Anterior Instrumentation for the Management of Thoracolumbar and Lumbar Scoliosis: Application of the Kaneda Two-Rod System**
Kiyoshi Kaneda, Yasuhiro Shono, Shigenobu Satoh, and Kuniyoshi Abumi

1261 **Point of View**
John E. Hall

1263 **1995 Scoliosis Research Society European Traveling Fellowship Report to the Education Committee**
Lawrence Lenke, Howard An, Hubert Labelle, and John Hall

1274 **Letters**

1279 **Meetings of Interest for Spine Physicians and Surgeons**

1282 **Information for Authors**

June 1

1285 **Morphologic Features of the Normal Human Cadaveric Spinal Cord**
Takashi Kameyama, Yoshio Hashizume, and Gen Sobue

1291 **The Location of the Vertebral Artery Foramen and its Relation to Posterior Lateral Mass Screw Fixation**
Nabil A. Ebraheim, Rongming Xu, and Richard A. Yeasting

1296 **Projection of the Lumbar Pedicle and its Morphometric Analysis**
Nabil A. Ebraheim, James R. Rollins, Jr, Rongming Xu, and Richard A. Yeasting

1301 **Immunohistochemical Demonstration of Sensory and Autonomic Nerve Terminals in Herniated Lumbar Disc Tissue**
Tove Palmgren, Mats Grönblad, Johanna Virri, Seppo Seitsalo, Martti Ruuskanen, and Erkki Karaharju

1307 **The Effect of Fibrin Sealant on Spinal Fusions Using Allograft in Dogs**
P. Jarzem, E. J. Harvey, R. Shenker, and A. Hajipavlou

1313 **Changes in Cervical Canal Spinal Volume During *In Vitro* Flexion–Extension**
Andrew Holmes, Ze Hui Han, Geng Ting Dang, Zhong Qing Chen, Zhi Guo Wang, and Jing Fang

1319 **Point of View**
Jiří Dvorak

1320 **Accuracy of Pedicle Screw Placement in Lumbar Vertebrae**
William H. M. Castro, Henry Halm, Jörg Jerosch, Jürgen Malms, Jörn Steinbeck, and Sebastian Blasius

1325 **Diagnostic Accuracy of Technologies Used in Low Back Pain Assessment: Thermography, Triaxial Dynamometry, Spinoscopy, and Clinical Examination**
Richard Leclaire, John M. Esdaile, Jean Claude Jéquier, James A. Hanley, Michel Rossignol, and Madeleine Bourdouxhe

1331 **Point of View**
Gordon Waddell

1332 **Lumbar Range of Motion: Reliability and Validity of the Inclinometer Technique in the Clinical Measurement of Trunk Flexibility**
Petra M. M. Saur, Franz-Bernhard M. Ensink, Knut Frese, Dagmar Seeger, and Jan Hildebrandt

1339 **Lumbar Range of Motion: Influence of Time of Day and Individual Factors on Measurements**
Franz-Bernhard M. Ensink, Petra M. M. Saur, Knut Frese, Dagmar Seeger, and Jan Hildebrandt

1344 **Prospective Outcome Evaluation of Spinal Cord Stimulation in Patients With Intractable Leg Pain**
Donna D. Ohnmeiss, Ralph F. Rashbaum, and G. Mitchell Bogdanffy

1351 **Point of View**
Volker K. H. Sonntag

1352 **Long-term Results of Partial Undercutting Facetectomy for Lumbar Lateral Recess Stenosis**
Paul L. Sanderson and Charles J. M. Getty

1357 **Pelvic Fractures After Long Lumbosacral Spine Fusions**
Kirkham B. Wood, Alfred E. Geissele, and James W. Ogilvie

1363 **Understanding Peripartum Pelvic Pain: Implications of a Patient Survey**
Jan M. A. Mens, Andry Vleeming, Rob Stoeckart, Henk J. Stam, and Chris J. Snijders

1369 **Point of View**
Robert C. Reiter

1371 **Superior Gluteal Artery Injury Secondary to Posterior Iliac Crest Bone Graft Harvesting: A Surgical Technique to Control Hemorrhage**
Alexander Y. Shin, Mark E. Moran, and Dennis R. Wenger

1375 **Bilateral Vertebral Artery Lesion After Dislocating Cervical Spine Trauma: A Case Report**
Reiner Wirbel, Georg Pistorius, Christoph Braun, Andreas Eichler, and Wolf Mutschler

1380 **Point of View**
Max Aebi

1381 **Hematocolpos: An Unusual Cause of Sciatica in an Adolescent Girl**
Nicholas J. London and Graham K. Sefton

1383 **Results of Surgery Compared With Conservative Management for Lumbar Disc Herniations**
Franco Postacchini

1388 **Andreas Vesalius: 1514–1564**
Arnaldo Benini and Susan K. Bonar

1394 **Letters**

1396 **Meetings of Interest for Spine Physicians and Surgeons**

1399 **Information for Authors**

June 15

1401 **Cadaveric Vascular Anatomy for Total *En Bloc* Spondylectomy in Malignant Vertebral Tumors**
Norio Kawahara, Katsuro Tomita, Hisatoshi Baba, Yasumitsu Toribatake, Takuya Fujita, Katsunori Mizuno, and Shigenori Tanaka

1408 **Changes in Responses of Wide Dynamic Range Neurons in the Spinal Dorsal Horn After Dorsal Root or Dorsal Root Ganglion Compression**
Fumihiko Hanai, Nobuo Matsui, and Nobuo Hongo

1414 **Point of View**
Marshall Devor

1416 **Phase Lag of the Intersegmental Motion in Flexion–Extension of the Lumbar and Lumbosacral Spine: An *In Vivo* Study**
Masahiro Kanayama, Kuniyoshi Abumi, Kiyoshi Kaneda, Shigeru Tadano, and Takayoshi Ukai

1423 **Biomechanical Role of the Posterior Elements, Costovertebral Joints, and Rib Cage in the Stability of the Thoracic Spine**
Itaru Oda, Kuniyoshi Abumi, Duosai Lü, Yasuhiro Shono, and Kiyoshi Kaneda

1430 **Occipitoatlantal and Occipitoaxial Hypermobility in Down Syndrome**
Koki Uno, Osamu Kataoka, and Ryoichi Shiba

1435 **Atlantoaxial Instability in Os Odontoideum With Myelopathy**
Masahiko Watanabe, Yoshiaki Toyama, and Yoshikazu Fujimura

1440 **Factors Related to the Severity of Myelopathy in Atlantoaxial Instability**
Kunito Nakajima, Toshinobu Onomura, Yasutaka Tanida, and Isaburo Ishibashi

1446 **Post-traumatic Syringomyelia**
Masatoshi Asano, Keiju Fujiwara, Kazuo Yonenobu, and Kazuo Hiroshima

1453 **Point of View**
Max Aebi

1454 **A Report on the Safety of Unilateral Vertebral Artery Ligation During Cervical Spine Surgery**
Yuichi Hoshino, Takahide Kurokawa, Kozo Nakamura, Atsushi Seichi, Toshikatsu Mamada, Kazuo Saita, and Kohta Miyoshi

1458 **Selecting a Surgical Method for Thoracic Myelopathy Caused by Ossification of the Posterior Longitudinal Ligament**
Yoshiro Kurosa, Isakichi Yamaura, Osamu Nakai, and Kenichi Shinomiya

1467 **Myelopathy Resulting From the Atlantodental Hypertrophic Osteoarthritis Accompanying the Dens Hypertrophy: Two Case Reports**
Kozo Sato, Seietsu Senma, Eiji Abe, Haruki Saito, and Hajime Saito

1472 **Presidential Guest Address: Practice Variations and the Challenge to Leadership**
John E. Wennberg

1479 **Letter**

1480 **Meetings of Interest for Spine Physicians and Surgeons**

1484 **Information for Authors**

July 1

1487 **The Effect of Anterior Thoracolumbar Plate Application on the Compressive Loading of the Strut Graft**
Mitchel B. Harris, Kevin A. Thomas, Cassim M. Igram, and Christopher M. Bearden

1494 **Biomechanical Analysis of Hemipelvic Deformation After Corticospongious Bone Graft Harvest From the Posterior Iliac Crest**
Endre Varga, Richard Hu, Trevor C. Hearn, Terry Woodside, and Jian-Ping Yang

1500 **An Electromyographic Study of Unresisted Trunk Rotation With Normal Velocity Among Healthy Subjects**
Shrawan Kumar, Yogesh Narayan, and Milan Zedka

1513 **Positions of Dorsal Root Ganglia in the Cervical Spine: An Anatomic and Clinical Study**
Shoji Yabuki and Shinichi Kikuchi

1518 **How Common Is Low Back Pain in the Nordic Population? Data From a Recent Study on a Middle-Aged General Danish Population and Four Surveys Previously Conducted in the Nordic Countries**
Charlotte Leboeuf-Yde, Niels Klougart, and Torsten Lauritzen

1525 **Point of View**
Tapio Videman

1527 **Familial Predisposition for Degenerative Disc Disease: A Case–Control Study**
Edward D. Simmons, Jr, Madhuri Guntupalli, Joseph M. Kowalski, Felix Braun, and Thomas Seidel

1530 **Measurement of Lumbar Lordosis: Evaluation of Intraobserver, Interobserver, and Technique Variability**
David W. Polly, Jr, Francis X. Kilkelly, Kathleen A. McHale, Lynn M. Asplund, Michael Mulligan, and Audrey S. Chang

1535 **Point of View**
William O. Shaffer

1537 **Correlative Measurement of Anterior Margin of the Anulus for Surgical Planning**
Terrence S. Lewis, Charles F. Lanzieri, and Russell W. Hardy, Jr

1540 **Reducing the Lifetime Risk of Cancer From Spinal Radiographs Among People With Adolescent Idiopathic Scoliosis**
Adrian R. Levy, Mark S. Goldberg, Nancy E. Mayo, James A. Hanley, and Benoit Poitras

1548 **Point of View**
James C. Ehrhardt

1549 **A Comparison of Radiographic and Electrogoniometric Angles in Adolescent Idiopathic Scoliosis**
Silvano A. Mior, Deborah R. Kopansky-Giles, Edward R. Crowther, and James G. Wright

1556 **The Importance of Preserving Disc Structure in Surgical Approaches to Lumbar Disc Herniation**
Joji Mochida, Kazuhiro Nishimura, Takeshi Nomura, Eiren Toh, and Masahiro Chiba

1563 **Point of View**
Stewart B. Dunsker

1565 **Effect of I0ntrathecal Opioids on Somatosensory-Evoked Potentials During Spinal Fusion in Children**
Mashallah Goodarzi, Nicte-Ha Shier, and Dennis P. Grogan

1569 **Chordoma of the Spine Above the Sacrum: Treatment and Outcome in 21 Cases**
Stefano Boriani, Francois Chevalley, James N. Weinstein, Roberto Biagini, Laura Campanacci, Federico De Iure, and Piero Picci

1578 **Fatal Transdental Posterior Rotary Subluxation of the Cervical Spine: A Case Report**
Ernst Sim and Andrea Berzlanovich

1584 **Crossed Femoral Stretching Test: A Case Report**
Brad G. Kreitz, Pierre Côté, and Ken Yong-Hing

1587 **A Method for Radiographic Evaluation of Pedicle Screw Violation of the Vertebral Endplate: Technique**
Jeffrey J. Meter, David W. Polly, Jr, David W. Miller, Neven A. Popovic, and Stephen L. Ondra

1593 **Clinical Practice Guidelines: Particular Reference to the Management of Pain in the Lumbosacral Spine**
Ian D. Steven and Robert D. Fraser

1597 **The Rise and Fall of Erichsen's Disease (Railroad Spine)**
Thomas Keller and Thomas Chappell

1602 **Implementing the Americans With Disabilities Act: 1996 Follow-Up Report on Sears, Roebuck and Co.**
Peter David Blanck

1609 **Letters**

1611 **Meetings of Interest for Spine Physicians and Surgeons**

1612 **Information for Authors**

1614 **Uniform Requirements**

July 15

1619 **The Quantitative Anatomy of the Cervical Nerve Root Groove and the Intervertebral Foramen**
Nabil A. Ebraheim, Howard S. An, Rongming Xu, Muhammad Ahmad, and Richard A. Yeasting

1624 **The Effectiveness of Various Cervical Orthoses: An *In Vivo* Comparison of the Mechanical Stability Provided by Several Widely Used Models**
Aaron J. Sandler, Jiri Dvorak, Thorsten Humke, Dieter Grob, and Willi Daniels

1629 **Point of View**
Edward H. Simmons

1630 **Threaded Steinmann Pin Fusion of the Craniovertebral Junction**
Paul J. Apostolides, Curtis A. Dickman, John G. Golfinos, Stephen M. Papadopoulos, and Volker K. H. Sonntag

1638 **Temporomandibular and Cervical Spine Disorders: Self-Reported Signs and Symptoms**
Anton de Wijer, J. R. J. de Leeuw, M. H. Steenks, and F. Bosman

1647 **Upregulated Expression of Chemokines in Herniated Nucleus Pulposus Resorption**
Hirotaka Haro, Kenichi Shinomiya, Hiromichi Komori, Atsushi Okawa, Ichiro Saito, Nobuyuki Miyasaka, and Kohtaro Furuya

1653 **Prostaglandin E_2 Content in Herniated Lumbar Disc Disease**
John L. O'Donnell and Amy L. O'Donnell

1655 **Point of View**
Björn L. Rydevik

1657 **Altered Lower Limb Vascular Perfusion in Patients With Sciatica Secondary to Disc Herniation**
Jean-Yves Maigne, Claude Treuil, and Gilles Chatellier

1661 **Prediction of Scoliotic Cobb Angle With the Use of the Scoliometer**
Panagiotis G. Korovessis and Marios V. Stamatakis

1667 **A Comparison of Methods for Measuring Trunk List: A Simple Plumbline Is the Best**
Ian P. McLean, Maureen G. C. Gillan, Jennifer C. Ross, Richard M. Aspden, and Richard W. Porter

1671 **Diurnal Changes in Lumbar Intervertebral Distance, Measured Using Ultrasound**
John R. Ledsome, Vickie Lessoway, Lark E. Susak, Faith A. Gagnon, Roy Gagnon, and Peter C. Wing

1676 **Myogenic Motor-Evoked Potential Monitoring Using Partial Neuromuscular Blockade in Surgery of the Spine**
Erhard W. Lang, Andreas S. Beutler, Randall M. Chesnut, Piyush M. Patel, Nicholas A. Kennelly, Cor J. Kalkman, John C. Drummond, and Steven R. Garfin

1686 **Point of View**
Kenneth A. Follett

1687 **Anterior Extraoral Surgery to the Upper Cervical Spine**
Massimo Laus, Giovanni Pignatti, Maria C. Malaguti, Calogero Alfonso, Franco A. Zappoli, and Armando Giunti

1694 **Management of Spinal Epidural Hematoma After Tissue Plasminogen Activator: A Case Report**
E. Sander Connolly, Jr, Christopher J. Winfree, and Paul C. McCormick

1699 **Scoliosis in Cerebral Gigantism, Sotos Syndrome: A Case Report**
Nobuhiko Haga, Shigeru Nakamura, Masanori Shimode, Yasuo Yanagisako, and Tsutomu Iwaya

1703 **Nonfunctioning Malignant Paraganglioma of the Posterior Mediastinum With Spinal Cord Compression: A Case Report**
Robbert J. P. Noorda, Paul I. J. M. Wuisman, Alain J. Kummer, Henri A. H. Winters, Jan A. Rauwerda, and Saskia M. Egeler-Peerdeman

1710 **Spontaneous Thoracic Spinal Cord Herniation: A Case Report**
Panayiotis Sioutos, Ehud Arbit, Peter Tsairis, and Ruth Gargan

1714 **Meetings of Interest for Spine Physicians and Surgeons**

1717 **Information for Authors**

August 1

1719 **Occipital Morphology: An Anatomic Guide to Internal Fixation**
Richard I. Zipnick, Andrew A. Merola, John Gorup, Kevin Kunkle, Tae Shin, Steven A. Caruso, and Thomas R. Haher

1725 **An Anatomic Study of the Thickness of the Occipital Bone: Implications for Occipitocervical Instrumentation**
Nabil A. Ebraheim, Jike Lu, Ashok Biyani, Jeffrey A. Brown, and Richard A. Yeasting

1729 **Point of View**
Dieter Grob

1731 **Prostaglandin Production After Experimental Discectomy**
James T. Robertson, George V. Huffmon, III, L. Brannon Thomas, Charles W. Leffler, Brett C. Gunter, and Richard P. White

1737 **Chronic Cervical Zygapophysial Joint Pain After Whiplash: A Placebo-Controlled Prevalence Study**
Susan M. Lord, Les Barnsley, Barbara J. Wallis, and Nikolai Bogduk

1744 **Point of View**
Richard Derby, Jr

1746 **Manipulation and Mobilization of the Cervical Spine: A Systematic Review of the Literature**
Eric L. Hurwitz, Peter D. Aker, Alan H. Adams, William C. Meeker, and Paul G. Shekelle

1759 **Point of View**
Joseph S. Barr, Jr

1761 **Craniocervical Junction Subarachnoid Hemorrhage Associated With Atlanto-occipital Dislocation**
Gregory J. Przybylski, Brent L. Clyde, and Charles R. Fitz

1769 **The Maine Lumbar Spine Study, Part I: Background and Concepts**
Robert B. Keller, Steven J. Atlas, Daniel E. Singer, Alice M. Chapin, Nancy A. Mooney, Donald L. Patrick, and Richard A. Deyo

1777 **The Maine Lumbar Spine Study, Part II: 1-Year Outcomes of Surgical and Nonsurgical Management of Sciatica**
Steven J. Atlas, Richard A. Deyo, Robert B. Keller, Alice M. Chapin, Donald L. Patrick, John M. Long, and Daniel E. Singer

1787 **The Maine Lumbar Spine Study, Part III: 1-Year Outcomes of Surgical and Nonsurgical Management of Lumbar Spinal Stenosis**
Steven J. Atlas, Richard A. Deyo, Robert B. Keller, Alice M. Chapin, Donald L. Patrick, John M. Long, and Daniel E. Singer

1794 **Point of View**
Alf L. Nachemson

1796 **Contamination Risks From a High-Speed Bone Burr**
Richard B. Schultz, Robert A. Probe, and Gary P. Holmes

1798 **Incidence of Scoliosis in β-Thalassemia and Follow-Up Evaluation**
Panagiotis Korovessis, Dimitris Papanastasiou, Maria Tiniakou, and Nicholas G. Beratis

1802 **Comparison of Lumbar Sagittal Alignment Produced by Different Operative Positions**
George C. Stephens, Jung U. Yoo, and Geoffery Wilbur

1807 **Point of View**
Keith H. Bridwell

1808 **Experimental Study of Temperature Distributions and Thermal Transport During Radiofrequency Current Therapy of the Intervertebral Disc**
Jonathan C. Houpt, Edison S. Conner, and Eric W. McFarland

1812 **Point of View**
Michael G. Fehlings

1814 **Traumatic Spondylopelvic Dissociation: A Case Report and Literature Review**
Robert T. Bents, John C. France, James M. Glover, and Kenneth L. Kaylor

1820 **Conservative Therapy of Atlantoaxial Osteomyelitis: A Case Report**
Cornelius H. Lam, Romeo Ethier, and Ronald Pokrupa

1824 **Finite Element Applications in Human Cervical Spine Modeling**
Narayan Yoganandan, Srirangam Kumaresan, Liming Voo, and Frank A. Pintar

1835 **Lumbar Disc Disease With Discogenic Pain: What Surgical Treatment Is Most Effective?**
Alf Nachemson, Thomas A. Zdeblick, and John P. O'Brien

1839 **Letters to the Editor**

1842 **Meetings of Interest for Spine Physicians and Surgeons**

August 15

1845 **The People of the North American Spine Society***
Hansen A. Yuan

1848 **Sensory Innervation to the Anterior Portion of Lumbar Intervertebral Disc**
Tatsuo Morinaga, Kazuhisa Takahashi, Masatsune Yamagata, Tanemichi Chiba, Koichi Tanaka, Yuzuru Takahashi, Shin-ichiro Nakamura, Kaoru Suseki, and Hideshige Moriya

1852 **Vulnerability of Great Medullary Artery**
Jike Lu, Nabil A. Ebraheim, Ashok Biyani, Jeffrey A. Brown, and Richard A. Yeasting

1856 **Prevalence, Morphology, and Topography of Blood Vessels in Herniated Disc Tissue: A Comparative Immunocytochemical Study**
Johanna Virri, Mats Grönblad, Johanna Savikko, Tove Palmgren, Seppo Seitsalo, Martti Ruuskanen, and Erkki Karaharju

1864 **Immunocytochemical Localization of Immunoglobulins in Disc Herniations**
Aklilu Habtemariam, Mats Grönblad, Johanna Virri, Seppo Seitsalo, Martti Ruuskanen, and Erkki Karaharju

1870 **The Effects of Nonsteroidal Anti-inflammatory Drugs on Posterior Spinal Fusions in the Rat***
John R. Dimar, II, William A. Ante, Y. Ping Zhang, and Steven D. Glassman

1876 **Point of View**
John S. Cowdery

1877 **Nonoperative Management of Herniated Cervical Intervertebral Disc With Radiculopathy***
Joel S. Saal, Jeffrey A. Saal, and Elizabeth F. Yurth

1883 **Point of View**
Richard J. Herzog

1884 **Convex Spinal Epiphysiodesis in the Management of Progressive Infantile Idiopathic Scoliosis**
David S. Marks, Mohammed J. Iqbal, Alistair G. Thompson, and Harry Piggott

1888 **Point of View**
Robert B. Winter

1889 **Results of Sacroiliac Joint Double Block and Value of Sacroiliac Pain Provocation Tests in 54 Patients With Low Back Pain**
Jean-Yves Maigne, Alain Aivaliklis, and Fabrice Pfefer

1893 **Are Postoperative Activity Restrictions Necessary After Posterior Lumbar Discectomy? A Prospective Study of Outcomes in 50 Consecutive Cases***
Eugene J. Carragee, Elizabeth Helms, and Glen S. O'Sullivan

1898 **Duration of Antituberculosis Chemotherapy in Conjunction With Radical Surgery in the Management of Spinal Tuberculosis**
Shanti S. Upadhyay, M. Joseph Saji, and Arthur C. M. C. Yau

1904 **The Use of Implantable Direct Current Stimulation in Multilevel Spinal Fusion Without Instrumentation: A Prospective Clinical and Radiographic Evaluation With Long-Term Follow-Up***
Neonilo A. Tejano, Rolando Puno, and Jose Manuel F. Ignacio

1909 **The Outcome of Posterolateral Fusion in Highly Selected Patients With Discogenic Low Back Pain***
Larry M. Parker, Sam E. Murrell, Scott D. Boden, and William C. Horton

1916 **Point of View**
Gordon R. Bell

1918 **Semirigid Instrumentation in the Management of Lumbar Spinal Conditions Combined With Circumferential Fusion: A Multicenter Study**
S. D. Gertzbein, R. Betz, D. Clements, T. Errico, K. Hammerberg, S. Robbins, E. Shepherd, A. Weber, M. Kerina, J. Albin, D. Wolk, and K. Ensor

1925 **Point of View**
Thomas S. Whitecloud, III

1927 ***En Bloc* Resections of Bone Tumors of the Thoracolumbar Spine: A Preliminary Report on 29 Patients**
Stefano Boriani, Roberto Biagini, Federico De Iure, Franco Bertoni, Maria C. Malaguti, Maria Di Fiore, and Antonio Zanoni

1932 **Quadriplegia After Lumbar Disc Surgery: A Case Report**
Johann J. Langmayr, Martin Ortler, Alois Obwegeser, and Stephan Felber

1936 **Warfarin-Induced Spondyloarthropathy With Pseudotumor-Like Appearance: A Case Report**
Eric E. Awwad, Robert J. Bernardi, and Murali Sundaram

1939 **Letters**

1941 **Meetings of Interest for Spine Physicians and Surgeons**

1943 **Information for Authors**

September 1

1945 **Magnetic Resonance Imaging and Biological Changes in Injured Intervertebral Discs Under Normal and Increased Mechanical Demands**
John M. Olsewski, Michael J. Schendel, Larry J. Wallace, James W. Ogilvie, and Cooper R. Gundry

1952 **Chondroitinase ABC (Pharmaceutical Grade) for Chemonucleolysis: Functional and Structural Evaluation After Local Application on Intraspinal Nerve Structures and Blood Vessels**
Kjell Olmarker, Joakim Strömberg, Jesper Blomquist, Peter Zachrisson, Ulf Nannmark, Claes Nordborg, and Björn Rydevik

1957 ***In Situ* Rigidity of a New Sliding Rod for Management of the Growing Spine in Duchenne Muscular Dystrophy**
Hans-Joachim Wilke, Patrick Kluger, Thomas Naumann, Thomas Kron, Lutz E. Claes, and Wolfhart Puhl

1962 **The Role of Imaging and *In Situ* Biomechanical Testing in Assessing Pedicle Screw Pull-Out Strength**
Barry S. Myers, Philip J. Belmont, Jr, William J. Richardson, James R. Yu, Kristine D. Harper, and Roger W. Nightingale

1969 **Neck and Shoulder Pain After Laminoplasty: A Noticeable Complication**
Noboru Hosono, Kazuo Yonenobu, and Keiro Ono

1974 **Melatonin Levels in Idiopathic Scoliosis: Diurnal and Nocturnal Serum Melatonin Levels in Girls With Adolescent Idiopathic Scoliosis**
Keith M. Bagnall, V. James Raso, Douglas L. Hill, Marc Moreau, James K. Mahood, Hongxing Jiang, Gordon Russell, Michael Bering, and Gerald R. Buzzell

1978 **Point of View**
Jean Dubousset

1979 **Long-Term Alterations of Respiratory Function in Adolescents Wearing a Brace for Idiopathic Scoliosis**
Panagiotis Korovessis, Kriton S. Filos, and Dimitrios Georgopoulos

1985 **Intraspinal Cross-section Areas Measured on Myelography-Computed Tomography: The Relation to Outcome in Nonoperated Lumbar Disc Herniation**
Gunnar Oland and Tor G. Hoff

1990 **Point of View**
Richard W. Porter

1991 **Embedded Tissue by Polymerase Chain Reaction in Pott's Disease**
R. Haluk Berk, Muharrem Yazici, Nese Atabey, O. Sukru Ozdamar, Ugur Pabuccuoglu, and Emin Alici

1996 **Comparison of Preoperative Selective Spinal Angiography and Somatosensory-Evoked Potential Monitoring With Temporary Occlusion of Segmental Vessels During Anterior Spinal Surgery**
George Bassett, Curtis Johnson, and Phillip Stanley

2000 **Point of View**
Tony P. Smith

2001 **Relationship of Lumbar Strength in Shipyard Workers to Workplace Injury Claims**
Vert Mooney, Kevin Kenney, Scott Leggett, and Bryon Holmes

2005 **Point of View**
Marianne Magnusson

2006 **The BWM Spinal Fixator System: A Preliminary Report of a 2-Year Prospective, International Multicenter Study in a Range of Indications Requiring Surgical Intervention for Bone Grafting and Pedicle Screw Fixation**
Stewart I. Bailey, Pietro Bartolozzi, Rudolf Bertagnoli, Stefano Boriani, Ad F. A. van Beurden, Anthony T. Cross, Hans P. Friedl, Kevin R. Gurr, Henry Halm, Hein J. A. Kruls, Peter Metz-Stavenhagen, and Kurt-Jürgen Schulze

2015 **Point of View**
Stephen I. Esses

2016 **Chronic Osteomyelitis of the Spine Managed With a Free Flap of Latissimus Dorsi: A Case Report**
Hung-chi Chen, Hern-hsin Chen, Wen-jer Chen, and Yueh-bih Tang

2019 **Ganglion Cyst of the Odontoid Process: Case Report and Review of the Literature**
Kamran Tabaddor, David Sachs, Josefina F. Llena, and Mark A. Testaiuti

2023 **Cervical Kyphosis After Resolution of Myopathic Head Drop: A Case Report**
J. Howard Jaster, Tulio E. Bertorini, Melanie P. Swims, F. Curtis Dohan, Jr, Paul G. Menke, Tibor Becske, and Klaus E. Mönkemüller

2026 **Computer-Aided Pedicle Screw Placement Using Frameless Stereotaxis**
Neil D. Glossop, Richard W. Hu, and John A. Randle

2035 **Percutaneous Transpedicular Biopsy of Vertebral Body Lesions**
James S. Jelinek, Mark J. Kransdorf, Richard Gray, Albert J. Aboulafia, and Martin M. Malawer

2041 **Repair of Defects in Spondylolysis by Segmental Pedicular Screw Hook Fixation: A Preliminary Report**
Yasuaki Tokuhashi and Hiromi Matsuzaki

2046 **Spinal Stenosis and Neurogenic Claudication**
Richard W. Porter

2053 **Meetings of Interest for Spine Physicians and Surgeons**

2056 **Information for Authors**

September 15

2059 **The Education, Training, and Evaluation of a Spine Surgeon**
Frank J. Eismont

2064 **The Injured Spinal Cord: Imaging, Histopathologic, Clinical Correlates, and Basic Science Approaches to Enhancing Neural Function After Spinal Cord Injury**
Robert M. Quencer and Richard P. Bunge

2067 **Growth of the Cervical Spine With Special Reference to Its Lordosis and Mobility**
Tokio Kasai, Takaaki Ikata, Shinsuke Katoh, Ryoji Miyake, and Masahiko Tsubo

2074 **Surgical Anatomy of the Vertebral Arteries**
Robert F. Heary, Todd J. Albert, Steven C. Ludwig, Alexander R. Vaccaro, Leo J. Wolansky, Timothy P. Leddy, and Richard R. Schmidt

2081 **An Analysis of the Posterior Epidural Ligament Role on the Cervical Spinal Cord**
Kenichi Shinomiya, John Dawson, Dan M. Spengler, Pete Konrad, and Bennett Blumenkopf

2089 **The Effects of Mechanical Compression and Hypoxia on Nerve Root and Dorsal Root Ganglia: An Analysis of Ectopic Firing Using an *In Vitro* Model**
Osamu Sugawara, Yuji Atsuta, Toshihito Iwahara, Toshiaki Muramoto, Makoto Watakabe, and Yoshiharu Takemitsu

2095 **Effects of Hypoxia on the Ventral Root Motor-Evoked Potential in the *In Vitro* Spinal Cord Preparation**
Hiromi Ataka, Masazumi Murakami, Sumio Goto, Hideshige Moriya, Fumiaki Hayashi, and Yasuichiro Fukuda

2100 **Point of View**
Haruo Tsuji

2101 **Pathomechanism of Pain-Related Behavior Produced by Allografts of Intervertebral Disc in the Rat**
Mamoru Kawakami, Tetsuya Tamaki, James N. Weinstein, Hiroshi Hashizume, Hideto Nishi, and Stephen T. Meller

2108 ***In Vitro* Biomechanical Comparison of Multistrand Cables With Conventional Cervical Stabilization**
James C. Weis, Bryan W. Cunningham, Masahiro Kanayama, Larry Parker, and Paul C. McAfee

2114 **Point of View**
Henry H. Bohlman

2115 **Effective Doses of Recombinant Human Bone Morphogenetic Protein-2 in Experimental Spinal Fusion**
Harvinder S. Sandhu, Linda E. A. Kanim, J. Michael Kabo, Jeffrey M. Toth, Erik N. Zeegen, David Liu, Rick B. Delamarter, and Edgar G. Dawson

2123 **Biocompatible Osteoconductive Polymer *Versus* Iliac Graft: A Prospective Comparative Study for the Evaluation of Fusion Pattern After Anterior Cervical Discectomy**
Ali Abou Madawi, Michael Powell, and H. Alan Crockard

2129 **Point of View**
Joon B. Park

2131 **The Effects of Internal Fixation on Calcium Carbonate: Ceramic Anterior Spinal Fusion in Dogs**
David A. Fuller, Sharon Stevenson, and Sanford E. Emery

2137 **Muscle Damping Measured With a Modified Pendulum Test in Patients With Fibromyalgia, Lumbago, and Cervical Syndrome**
Karen C. Wachter, Heinrich E. Kaeser, Hans Gühring, Thierry M. Ettlin, Pierre Mennet, and Wolfgang Müller

2143 **Survival Rates of Patients With Metastatic Spinal Cancer After Scintigraphic Detection of Abnormal Radioactive Accumulation**
Hikaru Tatsui, Toshinobu Onomura, Shinobu Morishita, Masanari Oketa, and Takashi Inoue

2149 **The Origin and Fate of Herniated Lumbar Intervertebral Disc Tissue**
Robert J. Moore, Barrie Vernon-Roberts, Robert D. Fraser, Orso L. Osti, and Mark Schembri

2156 **Is Pathology Examination of Disc Specimens Necessary After Routine Anterior Cervical Discectomy and Fusion?**
Tapan K. Daftari, James Levine, Jeffrey S. Fischgrund, and Harry N. Herkowitz

2160 **Wound Care After Posterior Spinal Surgery: Does Early Bathing Affect the Rate of Wound Complications?**
Eugene J. Carragee and Daniel W. Vittum

2163 **Salvage of Instrumented Lumbar Fusions Complicated by Surgical Wound Infection**
Steven D. Glassman, John R. Dimar, Rolando M. Puno, and John R. Johnson

2170 **Functional Outcome of Thoracolumbar Burst Fractures Managed With Hyperextension Casting or Bracing and Early Mobilization**
Gregory H. Chow, Bradley J. Nelson, James S. Gebhard, John L. Brugman, Courtney W. Brown, and David H. Donaldson

2176 **A Tribute to Pierre Stagnara (1917–1995)**
Jean DuBousset

2178 **Meetings of Interest for Spine Physicians and Surgeons**

2181 **Information for Authors**

October 1

2183 **Learning Effects of a Back Education Program**
Ronald J. Schenk, Rodney L. Doran, and John J. Stachura

2189 **Point of View**
Hamilton Hall

2190 **Differences in Sensitivity Between Magnetic Motor-Evoked Potentials and Somatosensory-Evoked Potentials in Experimental Spinal Cord Lesions**
Yutaka Hiraizumi, Ensor E. Transfeldt, Norio Kawahara, and Hiroshi Yamada

2197 **Effects of Muscle Dysfunction on Lumbar Spine Mechanics: A Finite Element Study Based on a Two Motion Segments Model**
Wayne Z. Kong, Vijay K. Goel, Lars G. Gilbertson, and James N. Weinstein

2206 **Point of View**
Mohamad Parnianpour

2208 **Can Variations in Intervertebral Disc Height Affect the Mechanical Function of the Disc?**
Y. Michael Lu, William C. Hutton, and Vasanti M. Gharpuray

2217 **Point of View**
Michael Adams

2218 **The Ideal Amount of Lumbar Foraminal Distraction for Pedicle Screw Instrumentation**
Akihiko Inufusa, Howard S. An, J. Michael Glover, Linda McGrady, Tae-Hong Lim, and Lee H. Riley, III

2224 **Biomechanics of Transfixation in Pedicle Screw Instrumentation**
Tae-Hong Lim, Jason C. Eck, Howard S. An, Jung Hwa Hong, Jae-Yong Ahn, and Jae Won You

2230 **Lumbar Range of Motion in Male Heavy Laborers on the Applied Rehabilitation Concepts (ARCON) System**
Deborah L. Hasten, Randall D. Lea, and F. Allen Johnston

2235 **Comparison of Gait Patterns Between Healthy and Scoliotic Patients Using Time and Frequency Domain Analysis of Ground Reaction Forces**
Giannis Giakas, Vasilios Baltzopoulos, Peter H. Dangerfield, John C. Dorgan, and Sofia Dalmira

2243 **Anatomic Distribution of Metastases in the Vertebral Body and Modes of Hematogenous Spread**
William T.C. Yuh, Jerome P. Quets, Han J. Lee, Tereasa M. Simonson, Linda S. Michalson, Phan T. Nguyen, Yutaka Sato, Nina A. Mayr, and Kevin S. Berbaum

2251 **The Value of Radionuclide Imaging in the Diagnosis of Sacroiliac Joint Syndrome**
Curtis W. Slipman, Elliot B. Sterenfeld, Larry H. Chou, Richard Herzog, and Edward Vresilovic

2255 **Surgical Treatment of Patients With Back Problems Covered By Workers Compensation Versus Those With Other Sources of Payment**
Victoria M. Taylor, Richard A. Deyo, Marcia Ciol, and William Kreuter

2259 **Point of View**
Gordon R. Bell

2260 **Management of Rigid Post-traumatic Kyphosis**
Shing-Sheng Wu, Su-Yang Hwa, Leou-Chyr Lin, Wei-Ming Pai, Po-Quang Chen, and Man-Kuan Au

2267 **Point of View**
Bruce E. Fredrickson

2268 **Hypomagnesemia in Postoperative Spine Fusion Patients**
Howard M. Place, Raymond J. Enzenauer, Barbara J. Muff, Philip J. Ziporin, and Courtney W. Brown

2273 **Pseudomeningocele/CSF Fistula in a Patient With Lumbar Spinal Implants Treated With Epidural Blood Patch and a Brief Course of Closed Subarachnoid Drainage: A Case Report**
Bruce M. McCormack, Sherry L. Taylor, Susan Heath, and Jeanie Scanlon

2276 **Point of View**
Frank J. Eismont

2277 **Cyclic Sciatica: A Manifestation of Compression of the Sciatic Nerve by Endometriosis: A Case Report**
Robin Dhôte, Loïc Tudoret, Claude Bachmeyer, Paul Legmann, and Boyan Christoforov

2280 **Cervical Myelopathy Caused by the Anomalous Vertebral Artery: A Case Report**
Takaaki Furumoto, Jouji Nagase, Kazuhisa Takahashi, Takashi Itabashi, Hiroshi Iai, and Naoki Ishige

2284 **Intramedullary Cysticercosis Cured With Drug Treatment: A Case Report**
Iñigo Corral, Carmen Quereda, Ana Moreno, Rogelio López-Vélez, Juan Martínez-San-Millán, Antonio Guerrero, and Julio Sotelo

2288 **Hospital Privileges and the Americans With Disabilities Act**
Pope L. Moseley, Peter David Blanck, and Randy R. Merritt

2294 **Athletes With Cervical Spine Injury**
Joseph C. Maroon and Julian E. Bailes

2300 **Letters**

2303 **Meetings of Interest for Spine Physicians and Surgeons**

October 15

2307 **The Anatomy of the Human Lumbar Ligamentum Flavum: New Observations and Their Surgical Importance**
Albert D. Olszewski, Michael J. Yaszemski, and Augustus A. White, III

2313 **Iliolumbar Ligament Insertions: *In Vivo* Anatomic Study**
Pier-Tommaso Basadonna, Daniele Gasparini, and Vincenzo Rucco

2317 **Anatomic Consideration of Transpedicular Screw Placement in the Cervical Spine: An Analysis of Two Approaches**
Richard M. Miller, Nabil A. Ebraheim, Rongming Xu, and Richard A. Yeasting

2323 **The Natural History of Low Back Pain in Adolescents**
A. Kim Burton, Robert D. Clarke, Timothy D. McClune, and K. Malcolm Tillotson

2329 **Effect of an Early Intervention Program on the Relationship Between Subjective Pain and Disability Measures in Nurses With Low Back Injury**
Juliette E. Cooper, Robert B. Tate, Annalee Yassi, and Jawad Khokhar

2337 **Discriminatory Power of Tests Applied in Back Pain During Pregnancy**
Per Kristiansson and Kurt Svärdsudd

2343 **Point of View**
Ingrid Nygaard

2345 **Neurologic Outcome in Conservatively Treated Patients With Incomplete Closed Traumatic Cervical Spinal Cord Injuries**
Shinsuke Katoh, Wagih S. El Masry, David Jaffray, Iain W. McCall, Stephen M. Eisenstein, R. G. Pringle, Victor Pullicino, and Takaaki Ikata

2352 **Prolapsed Cervical Intervertebral Disc in Male Professional Drivers in Denmark, 1981–1990: A Longitudinal Study of Hospitalizations**
Marianne V. Jensen, Finn Tüchsen, and Elsa Ørhede

2356 **The Effect of Age on the Change in Deformity After Anterior Débridement Surgery for Tuberculosis of the Spine**
Shanti S. Upadhyay, M. Joseph Saji, Phillip Sell, Louise C. S. Hsu, and Arthur C. M. C. Yau

2363 **The Effect of Intraoperative Blood Loss on Serum Cefazolin Level in Patients Undergoing Instrumented Spinal Fusion: A Prospective, Controlled Study**
David W. Polly, Jr, Jeffrey J. Meter, Ralf Brueckner, Lynn Asplund, and Bruce E. van Dam

2368 **Vertebral Body Osteopenia Associated With Posterolateral Spine Fusion in Humans**
Mark A. Myers, Thomas Casciani, M. Gordon Whitbeck, Jr, and J. Edward Puzas

2371 **Point of View**
Richard D. Guyer

2372 **Cervical Myelopathy Caused by Calcium Pyrophosphate Dihydrate Crystal Deposition in Facet Joints: A Case Report**
Kikuo Omura, Sinsuke Hukuda, Keiji Matsumoto, Akitomo Katsuura, Junichi Nishioka, and Shinji Imai

2376 **Superior Gluteal Artery Injury During Iliac Bone Grafting for Spinal Fusion: A Case Report and Literature Review**
Edward V. A. Lim, William T. Lavadia, and John M. Roberts

2379 **Ureteral Injury After Anterior Lumbar Interbody Fusion: A Case Report**
Zekeriya U. Isiklar, Ronald W. Lindsey, and Michael Coburn

2382 **Point of View**
John P. O'Brien

2383 **Management of Iatrogenic Spinal Stenosis Complicating Placement of a Fusion Cage: A Case Report**
Steven D. Glassman, John R. Johnson, George Raque, Rolando M. Puno, and John R. Dimar

2387 **An Unusual Presentation of Acute Lumbar Nerve Root Pain: A Case Report**
Cornelia S. Carr and Michael A. Edgar

2390 **Zone III Fractures of the Sacrum: A Case Report**
Nabil A. Ebraheim, Ashok Biyani, and Benjamin Salpietro

2397 **If You Have to Prove You Are Ill, You Can't Get Well: The Object Lesson of Fibromyalgia**
Nortin M. Hadler

2401 **Meetings of Interest for Spine Physicians and Surgeons**

November 1

2405 **Chemonucleolytic Effects of Chondroitinase ABC on Normal Rabbit Intervertebral Discs: Course of Action up to 10 Days Postinjection and Minimum Effective Dose**
Toyomi Takahashi, Hitoshi Kurihara, Shin-ichi Nakajima, Tadahiko Kato, Satoshi Matsuzaka, Tomoko Sekiguchi, Mayumi Onaya, Satoshi Miyauchi, Shyoji Mizuno, Katsuyuki Horie, Yoshimasa Fujita, and Tsuneo Hirose

2412 **Anatomic Changes of the Spinal Canal and Intervertebral Foramen Associated With Flexion–Extension Movement**
Akihiko Inufusa, Howard S. An, Tae-Hong Lim, Toru Hasegawa, Victor M. Haughton, and Bruce H. Nowicki

2421 **Effects of Posture and Structure on Three-Dimensional Coupled Rotations in the Lumbar Spine: A Biomechanical Analysis**
Jacek Cholewicki, Joseph J. Crisco, III, Thomas R. Oxland, Isao Yamamoto, and Manohar M. Panjabi

2429 **Insertional Torque and Pull-out Strengths of Conical and Cylindrical Pedicle Screws in Cadaveric Bone**
Amy W. L. Kwok, Joel A. Finkelstein, Terry Woodside, Trevor C. Hearn, and Richard W. Hu

2435 **The Effect of Initial Head Position on Active Cervical Axial Rotation Range of Motion in Two Age Populations**
Roy P. Walmsley, Perry Kimber, and Elsie Culham

2442 **Point of View**
Jiri Dvorak

2443 **Electromyographic Activity of the Cervical Musculature During Dynamic Lateral Bending**
Weijia W. Lu and Patrick J. Bishop

2450 **Cotrel–Dubousset Instrumentation in Children Using Simultaneous Motor And Somatosensory Evoked Potential Monitoring**
John P. Stephen, Martin R. Sullivan, Richard G. Hicks, David J. Burke, Ian J. Woodforth, and Matthew R. Crawford

2458 **The Possibility of Creating Lordosis and Correcting Scoliosis Simultaneously After Partial Disc Removal: Balance Lines of Lumbar Motion Segments**
Michael Ogon, Christian Haid, Martin Krismer, Rupert Jesenko, and Cornelius Wimmer

2463 **Reproducibility in the Measurement of Atlanto-occipital Instability in Children With Down Syndrome**
Lori A. Karol, Eugene G. Sheffield, Kevin Crawford, Marilyn K. Moody, and Richard H. Browne

2468 **Point of View**
Arnold H. Menezes

2469 **Comparison of the Use of Supine Bending and Traction Radiographs in the Selection of the Fusion Area in Adolescent Idiopathic Scoliosis**
John J. Vaughan, Robert B. Winter, and John E. Lonstein

2474 **Ligamentous Ossification of the Cervical Spine in the Late Middle-Aged Japanese Men: Its Relation to Body Mass Index and Glucose Metabolism**
Yoshihiro Shingyouchi, Akinobu Nagahama, and Masakuni Niida

2479 **Efficacy of Implanted Bone Growth Stimulation in Instrumented Lumbosacral Spinal Fusion**
Abraham Rogozinski and Chaim Rogozinski

2484 **The Value of Percutaneous Transpedicular Vertebral Bone Biopsies for Histologic Examination: Results of an Experimental Histopathologic Study Comparing Two Biopsy Needles**
John Christopher Ward, Bernard Jeanneret, Christian Oehlschlegel, and Friedrich Magerl

2491 **Extraperitoneal Approach to the Lumbar Spine With Video Assistance**
Michel Onimus, Patrice Papin, and Serge Gangloff

2495 **The Removal of a Transdural Pedicle Screw Placed for Thoracolumbar Spine Fracture**
Daniel J. Donovan, David W. Polly Jr, and Stephen L. Ondra

2499 **Point of View**
Stephen I. Esses

2500 **Severe Fracture–Dislocation of S1 in a 12-Year-Old Boy: A Case Report**
Hariton V. Novkov, Panayot J. Tanchev, and Ivan S. Gyorev

2504 **Arachnoiditis Ossificans of the Cauda Equina Demonstrated on Computed Tomography Scanogram: A Case Report**
Perry Ng, Ivan Lorentz, and Yoi Sun Soo

2508 **Neurologic and Vascular Complications of Scoliosis Surgery in Patients With Ehlers-Danlos Syndrome: A Case Report**
Lawrence C. Vogel and John P. Lubicky

2515 **Spinal Shortening in Scoliosis Surgery: A Case With Transitory Paraplegia**
José Grass Pedrals

2519 **Point of View**
Gordon L. Engler

2520 **Fusion of L5–S1 in Adult Scoliosis**
William C. Horton, Richard T. Holt, and David S. Muldowny

2523 **The Use of Adjunctive Electrical Stimulation to Enhance the Healing of Spine Fusions**
Neil Kahanovitz

2526 **Meetings of Interest for Spine Physicians and Surgeons**

2529 **Information for Authors**

November 15

2531 **A Controlled Biochemical and Immunohistochemical Study of Human Synovial-Type (Group II) Phospholipase A_2 and Inflammatory Cells in Macroscopically Normal, Degenerated, and Herniated Human Lumbar Disc Tissues**
Mats Grönblad, Johanna Virri, Seppo Rönkkö, Ilkka Kiviranta, Heikki Vanharanta, Seppo Seitsalo, Ralph F. Rashbaum, and Richard D. Guyer

2539 **Incision of the Anulus Fibrosus Induces Nerve Root Morphologic, Vascular, and Functional Changes: An Experimental Study**
Satoru Kayama, Shinichi Konno, Kjell Olmarker, Shoji Yabuki, and Shinichi Kikuchi

2544 **Increased Resistance to Acute Compression Injury in Chronically Compressed Spinal Nerve Roots: An Experimental Study**
Shinichi Kikuchi, Shinichi Konno, Satoru Kayama, Katsuhiko Sato, and Kjell Olmarker

2551 **The Contribution of Anulus Fibers to Torque Resistance**
Martin Krismer, Christian Haid, and Walter Rabl

2558 **The Relative Importance of Vertebral Bone Density and Disc Degeneration in Spinal Flexibility and Interbody Implant Performance: An *In Vitro* Study**
Thomas R. Oxland, Teija Lund, Bernhard Jost, Peter Cripton, Kurt Lippuner, Philippe Jaeger, and Lutz-P. Nolte

2570 **Do Bending, Twisting, and Diurnal Fluid Changes in the Disc Affect the Propensity to Prolapse? A Viscoelastic Finite Element Model**
Y. Michael Lu, William C. Hutton, and Vasanti M. Gharpuray

2580 ***In Vivo* Stress Measurement Can Predict Pain on Discography**
Donal S. McNally, Ian M. Shackleford, Allen E. Goodship, and Robert C. Mulholland

2588 **Standardized Radiologic Protocol for the Study of Common Coccygodynia and Characteristics of the Lesions Observed in the Sitting Position: Clinical Elements Differentiating Luxation, Hypermobility, and Normal Mobility**
Jean-Yves Maigne and Bertrand Tamalet

2594 **The Value of Medical History and Physical Examination in Diagnosing Sacroiliac Joint Pain**
Paul Dreyfuss, Mark Michaelsen, Kevin Pauza, Jerry McLarty, and Nikolai Bogduk

2603 **Psychological Questionnaires: Do "Abnormal" Scores Precede or Follow First-Time Low Back Pain?**
Anne F. Mannion, Patricia Dolan, and Michael A. Adams

2612 **Occupational Risk Factors for the First-Onset and Subsequent Course of Low Back Trouble: A Study of Serving Police Officers**
A. Kim Burton, K. Malcolm Tillotson, Tara L. Symonds, Catherine Burke, and Tony Mathewson

2621 **Psychomotor Speed and Postural Control in Chronic Low Back Pain Patients: A Controlled Follow-Up Study**
Satu Luoto, Simo Taimela, Heikki Hurri, Heikki Aalto, Ilmari Pyykkö, and Hannu Alaranta

2628 **Muscular Response to Sudden Load: A Tool to Evaluate Fatigue and Rehabilitation**
David G. Wilder, Assen R. Aleksiev, Marianne L. Magnusson, Malcolm H. Pope, Kevin F. Spratt, and Vijay K. Goel

2640 **Inefficient Muscular Stabilization of the Lumbar Spine Associated With Low Back Pain: A Motor Control Evaluation of Transversus Abdominis**
Paul W. Hodges and Carolyn A. Richardson

2651 **Asymmetry of Erector Spinae Muscle Activity in Twisted Postures and Consistency of Muscle Activation Patterns Across Subjects**
Jaap H. van Dieën

2662 **"Movement" in Work Status After Pain Facility Treatment**
David A. Fishbain, Robert B. Cutler, Hubert Rosomoff, Tarek Khalil, Elsayed Abdel-Moty, Soha Sadek, Ahmed Zaki, Alan Saltzman, Joy Jarrett, Gloria Martinez, and Renee Steele-Rosomoff

2670 **Hyperextension and Spine Height Changes**
Marianne L. Magnusson, Assen R. Aleksiev, Kevin F. Spratt, Roderic S. Lakes, and Malcolm H. Pope

2676 **Perioperative Nutrition and Postoperative Complications in Patients Undergoing Spinal Surgery**
Jeffrey D. Klein, Lloyd A. Hey, Chun Sing Yu, Barbi B. Klein, Frank J. Coufal, Edmond P. Young, Lawrence F. Marshall, and Steven R. Garfin

2683 **Back Muscle Injury After Posterior Lumbar Spine Surgery: Topographic Evaluation of Intramuscular Pressure and Blood Flow in the Porcine Back Muscle During Surgery**
Yoshiharu Kawaguchi, Shoji Yabuki, Jorma Styf, Kjell Olmarker, Björn Rydevik, Hisao Matsui, and Haruo Tsuji

2689 **Video-Assisted Lateral Intertransverse Process Arthrodesis: Validation of a New Minimally Invasive Lumbar Spinal Fusion Technique in the Rabbit and Nonhuman Primate (Rhesus) Models**
Scott D. Boden, Peter A. Moskovitz, Michael A. Morone, and Yasumitsu Toribitake

2698 **Letters**

2702 **Meetings of Interest for Spine Physicians and Surgeons**

December 1

2705 **Development of the Lumbar and Sacral Vertebral Canal *in Utero***
Traian R. S. Ursu, Richard W. Porter, and Visvan Navaratnam

2709 **Anatomic Considerations for Posterior Approach to the Sacroiliac Joint**
Nabil A. Ebraheim, Jike Lu, Ashok Biyani, and Richard A. Yeasting

2713 **Ceramic Anterior Spinal Fusion: Biologic and Biomechanical Comparison in a Canine Model**
Sanford E. Emery, David A. Fuller, and Sharon Stevenson

2720 **New Insight Into the Mechanics of the Lumbar Interspinous Ligament**
James P. Dickey, Drew A. Bednar, and Geneviève A. Dumas

2728 **Comparison Between Single-Screw and Triangulated, Double-Screw Fixation in Anterior Spine Surgery: A Biomechanical Test**
Michael Ogon, Christian Haid, Martin Krismer, Wolfgang Sterzinger, and Rudolf Bauer

2735 **The Nosologic Status of the Whiplash Syndrome: A Critical Review Based on a Methodological Approach**
Lars J. Stovner

2747 **A Cross-Sectional Study Correlating Cervical Radiographic Degenerative Findings to Pain and Disability**
Dennis M. Marchiori, and Charles N.R. Henderson

2752 **Point of View**
Paul Shekelle

2753 **Migration of the Nucleus Pulposus Within the Intervertebral Disc During Flexion and Extension of the Spine**
Anthony J. Fennell, Andrew P. Jones, and David W.L. Hukins

2758 **The Prolapsed Intervertebral Disc: The High-Intensity Zone With Discography Correlation**
Robert Ricketson, James W. Simmons, and Bill O. Hauser

2763 **Multifidus Muscle Recovery Is Not Automatic After Resolution of Acute, First-Episode Low Back Pain**
Julie A. Hides, Carolyn A. Richardson, and Gwendolen A. Jull

2770 **Trunk Extensor and Flexor Strength Measured by the Cybex 6000 Dynamometer: Assessment of Short-Term and Long-Term Reproducibility of Several Strength Variables**
Ole R. Madsen

2777 **Regression of Back and Posterior Pelvic Pain After Pregnancy**
Hans C. Östgaard, Eva Roos-Hansson, and Gunilla Zetherström

2781 **Self-Reported Physical Exertion in Geriatric Care: A Risk Indicator for Low Back Symptoms?**
Malin Josephson, Mats Hagberg, and Ewa Wigaeus Hjelm

2786 **Prospective, Multicenter Study of Spinal Cord Stimulation for Relief of Chronic Back and Extremity Pain**
Kim J. Burchiel, Valerie C. Anderson, Frederick D. Brown, Richard G. Fessler, William A. Friedman, Stan Pelofsky, Richard L. Weiner, John Oakley, and Deborah Shatin

2795 **Efficacy of Autotransfusion in Spine Surgery: Comparison of Autotransfusion Alone and With Hemodilution and Apheresis**
Robert E. Blais, Alexander G. Hadjipavlou, and Gerald Shulman

2801 **Cervical Pseudarthrosis in Ankylosing Spondylitis: A Case Report**
Alain Deburge, Pierre Guigui, Mehdi Ouahes, and Eric Barre

2805 **Point of View**
Edward H. Simmons

2806 **Spinal Osteomyelitis Presenting With a Life-Threatening Pleural Empyema**
Sanjiv Jari, Ahmed El-Gamel, Tim H. Meadows, and Colin Campbell

2809 **Exercise for Osteoporosis—Is Walking Enough?: The Case for Site Specificity and Resistive Exercise**
Robert L. Swezey

2814 **Meetings of Interest for Spine Physicians and Surgeons**

2817 **Information for Authors**

December 15

2819 **Introduction**
Daniel Cherkin

2820 **Low Back Pain: A Twentieth Century Health Care Disaster**
Gordon Waddell

2826 **Low Back Pain: A Primary Care Challenge**
Richard A. Deyo and William R. Phillips

2833 **The Course of Back Pain in Primary Care**
Michael Von Korff and Kathleen Saunders

2838 **Point of View**
Martin Roland

2839 **Point of View**
Hans M. M. van den Hoogen

2840 **Drug Therapy for Back Pain: Which Drugs Help Which Patients?**
Richard A. Deyo

2849 **Point of View**
James Bergman

2850 **Point of View**
William R. Phillips

2851 **Educational and Behavioral Interventions for Back Pain in Primary Care**
Judith A. Turner

2858 **Point of View**
W. Scott Schroth

2858 **Point of View**
Wilbert E. Fordyce

2860 **Spinal Manipulation for Low Back Pain: An Updated Systematic Review of Randomized Clinical Trials**
Bart W. Koes, Willem J. J. Assendelft, Geert J. M. G. van der Heijden, and Lex M. Bouter

2871 **Point of View**
Paul G. Shekelle

2872 **Point of View**
William C. Meeker

2874 **Exercises: Which Ones Are Worth Trying, for Which Patients, and When?**
Arie Faas

2878 **Point of View**
Michele Crites Battié

2879 **Point of View**
Antti Malmivaara

2880 **An Agenda for Primary Care Research on Low Back Pain**
Jeffrey M. Borkan and Daniel C. Cherkin

2885 **The Quebec Task Force Classification for Spinal Disorders and the Severity, Treatment, and Outcomes of Sciatica and Lumbar Spinal Stenosis**
Steven J. Atlas, Richard A. Deyo, Donald L. Patrick, Karen Convery, Robert B. Keller, and Daniel E. Singer

2893 **Should the Gap Be Filled Between Guidelines and Actual Practice for Management of Low Back Pain in Primary Care?: The Quebec Experience**
Michel Rossignol, Lucien Abenhaim, Yvette Bonvalot, Denis Gobeille, and Ian Shrier

2898 **Point of View**
Gordon Waddell

2900 **Predicting Poor Outcomes for Back Pain Seen in Primary Care Using Patients' Own Criteria**
Daniel C. Cherkin, Richard A. Deyo, Janet H. Street, and William Barlow

2908 **Disability Resulting From Occupational Low Back Pain: Part I: What Do We Know About Primary Prevention? A Review of the Scientific Evidence on Prevention Before Disability Begins**
John W. Frank, Mickey S. Kerr, Ann-Sylvia Brooker, Suzanne E. DeMaio, Andreas Maetzel, Harry S. Shannon, Terry J. Sullivan, Robert W. Norman, and Richard P. Wells

2918 **Disability Resulting From Occupational Low Back Pain: Part II: What Do We Know About Secondary Prevention? A Review of the Scientific Evidence on Prevention After Disability Begins**
John W. Frank, Ann-Sylvia Brooker, Suzanne E. DeMaio, Mickey S. Kerr, Andreas Maetzel, Harry S. Shannon, Terry J. Sullivan, Robert W. Norman, and Richard P. Wells

2930 **Meetings of Interest for Spine Physicians and Surgeons**

2933 **Information for Authors**

2935 **Index**

December 15, Supplement

1S **Introduction to Focus Issue on Disc Herniation**
Gunnar B. J. Andersson and James N. Weinstein

2S **Natural History and Nonoperative Treatment of Lumbar Disc Herniation**
Jeffrey A. Saal

10S **History and Physical Examination in Patients With Herniated Lumbar Discs**
Gunnar B. J. Andersson and Richard A. Deyo

19S **The Radiologic Assessment for a Lumbar Disc Herniation**
Richard J. Herzog

39S **Neurophysiologic Tests in Diagnosis of Nerve Root Compression Caused by Disc Herniation**
Jiri Dvorák

45S **Focus Issue on Lumbar Disc Herniation: Macro- and Microdiscectomy**
John A. McCulloch

57S **History and Current Status of Percutaneous Arthroscopic Disc Surgery**
Parviz Kambin and Linqiu Zhou

62S **Update on Chemonucleolysis**
Mark D. Brown

69S **Cost-Effectiveness of Lumbar Discectomy**
Alex D. Malter and James Weinstein

75S **Consensus Summary on the Diagnosis and Treatment of Lumbar Disc Herniation**
Gunnar B. J. Andersson, Mark D. Brown, Jiri Dvorak, Richard J. Herzog, Parvis Kambin, Alex Mater, John A. McCulloch, Jeffrey A. Saal, Kevin F. Spratt, and James N. Weinstein

79S **Meetings of Interest for Spine Physicians and Surgeons**

82S **Information for Authors**